MONTANA STATE LIBRARY
3 0864 0015 7102 8

STATE DOCUMENTS COLLECTION
JAN 31 2001
MONTANA STATE LIBRARY
1515 E. 6th AVE.
HELENA, MONTANA 59620

ENVIRONMENTAL ANALYSIS

FOR THE

CAMAS SALVAGE TIMBER SALE

PREPARED BY

LARRY BALLANTYNE

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

NORTHWESTERN LANDS OFFICE, KALISPELL/PLAINS UNIT

CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name: CAMAS SALVAGE TIMBER SALE Proposed Implementation Date: December, 2000

Proponent: **DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, NORTHWESTERN LANDS OFFICE, KALISPELL/PLAINS UNIT.**

Type and Purpose of Action: **The Department of Natural Resources and Conservation proposes to salvage approximately 20,290 tons of timber burned during the Clear Divide Fire of August and September, 2000. This action would produce revenue that would otherwise be lost to the public school (C.S.) Trust Grant. Activities proposed in conjunction with the salvage operation would initiate recovery and regeneration on this section. Prompt return to productivity is beneficial to future Trust actions. No viable, proven, revenue generating alternatives were identified or proposed during project scoping, therefore only forest product removal and sale are analyzed in this EA checklist.**

This proposal contains two alternatives for consideration: an Action and a No Action alternative. The Action Alternative proposes five salvage units totaling 410 acres. An estimated 20,290 tons of fire damaged timber would be salvaged. New road construction or other significant development costs would not be required to implement the Action Alternative. Income to the Trust from this project is estimated at $ 260,000.00. Procedures intended to assist in the biologic recovery of this section are included in the Action Alternative. The No Action Alternative would sacrifice the revenue associated with the burned timber and provide no specific actions directed toward returning this section to productivity.

The lands involved in this proposed project are held by the State of Montana in trust for the support of the specific beneficiary institutions such as public schools, state colleges and universities, and other specific State institutions such as the School for the Deaf and Blind (Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X, Section 11). The board of Land Commissioners and the Department of Natural Resources and Conservation are required by law to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run for these beneficiary institutions (Section 77-1-202, MCA). On May 30, 1996, the Department released the Record of Decision on the State Forest Land Management Plan (the Plan). The Land Board approved the Plan's implementation on June 17, 1996. The Plan outlines the management philosophy of DNRC in the management of state forested lands, as well as sets out the specific Resource Management Standards for ten resource categories.

The Department will manage the lands involved in this project according to the philosophy and standards in the Plan, which states:

> **Our premise is that the best way to produce long-term income for the trust is to manage intensively for health and biologically diverse forests. Our understanding is that a diverse forest is a stable forest that will produce the most reliable and highest long-term revenue stream. In the foreseeable future, timber management will continue to be our primary source of revenue and our primary tool for achieving biodiversity objectives.**

Location: Section 16 T19N R24W County: Sanders

Digitized by the Internet Archive
in 2016

https://archive.org/details/environmentalana2000ball

I. PROJECT DEVELOPMENT	
1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS, OR INDIVIDUALS CONTACTED: Provide a chronology of the scoping and ongoing involvement for this project	Public involvement has been solicited through a combination of newspaper advertisements, plus letters sent to adjacent landowners and other known interested parties and organizations. Public response was received and used to assist in defining issues surrounding the proposed project. Management issues were identified by DNRC field foresters and (CS&KT) Resource Specialists, Confederated Salish and Kootenai Tribal Natural Resource personnel, local residents, regional environmental groups, and timber industry organizations. Three State owned sections involved in the Clear Creek Fire Complex were considered for salvage potential. One section (S36, T19N, R24W) was deferred due to proximity of sensitive cultural sites. A second section (S16, T18N, R23W) was deferred from active management due to economic factors and the value of retaining the area as wildlife habitat. Concerns identified for the project area (S16, T19N, R24W) include increases in water yield, fine sediment delivery, soil displacement and potential for erosion, habitat conditions for big game species, economic feasibility, the effects of salvage logging, and the effect of no action. Issues and concerns have been resolved or mitigated through project design or would be included as specific contract requirements of the project (see Attachment 2, Specialist Reports; Attachment 3, Stand Prescriptions; Attachment 5, Effects/Cumulative Effects Analysis; Attachment 6, Mitigation Measures; Attachment 7, Consultants and References).
2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:	Approval by the Tribal Council of the Confederated Salish and Kootenai tribes is required for the implementation of this project.
3. ALTERNATIVES CONSIDERED:	No Action: This alternative would not produce revenue for the Common School (C.S.) Trust Grant. Income available to the Trust from fire damaged timber would be lost. Recovery and regeneration actions proposed by the Action Alternative would not occur. Action: The Action Alternative would salvage approximately 20,290 tons (2.5 95 MMBF) of sawtimber from 410 acres, generating approximately $325,000 of income to the Common School (C.S.) Trust Grant which otherwise would be lost. The Action Alternative would include measures to initiate regeneration on this section, as well as mitigate problems associated with the aftermath of a fire of catastrophic proportion. All recommendations of DNRC and CS&K Tribal specialists would be included in the project. (See Attachment 2, Specialists Reports; Attachment 3, Stand Prescriptions; and Attachment 6, Mitigation Measures). Cumulative Effects are detailed in Attachment 5.

II. IMPACTS ON THE PHYSDICAL ENVIRONMENT	
Resource	(Y/N) Potential Impacts
4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE: Are fragile, compactible or unstable soils present? Are there unusual geologic features? Are there special reclamation considerations?	[Y] Measures to minimize erosion and the effects of hydrophobic soils as recommended by the DNRC specialists are included in the project design. There would be no adverse cumulative effect to soil as a result of the proposed project (See Attachment 2, Specialist Reports; Attachment 5, Effects/Cumulative Effects; Attachment 6, Mitigation Measures).
5. WATER QUALITY, QUANTITY AND DISTRIBUTION: Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?	[Y] The project area, transportation system, and harvest plan have been reviewed by DNRC and CS&K Tribal hydrologists. Recommendations to minimize hydrologic impacts have been incorporated into the project design. There would no adverse cumulative effect to water resources as a result of the proposed project. (See Attachment 2, Specialist Reports; Attachment 5, Effects/Cumulative Effects; Attachment 6, Mitigation Measures).
6. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?	[Y] This section is located within a Class 1 Airshed Some particulate will be introduced to the airshed from the burning of logging slash. All burning will be conducted during times of adequate ventilation within the existing rules and regulations as provided by the Montana Airshed Group and the CS&K Tribes. There would be no adverse cumulative effect to air quality as a result of the proposed project (See Attachment 5, Effects/Cumulative Effects).
7. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be permanently altered? Are any rare plants or cover types present?	[N] Vegetative cover has been extensively altered by the Clear Creek Divide fire. These changes are temporary rather than permanent. Recovery and regeneration following the proposed project will initiate the process of forest growth and succession. Silvicultural prescriptions have been developed to aid in establishment of regeneration in the burned timber stands. No old growth stands are affected by the Action Alternative. A biodiversity analysis has been completed and no adverse effect to cover types has been indicated. There would be no adverse cumulative effects on vegetation as a result of the proposed project (See Attachment 3, Silvicultural Prescriptions; Attachment 4, Biodiversity Analysis; Attachment 5, Effects/Cumulative Effects). No sensitive plants listed by the Montana Natural Heritage Program have been identified on this site.
8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds or fish?	[Y] Several species of big game use this section. Actions to regenerate this burned area would initiate recovery of favorable habitat for big game species. Snag retention levels specify the retention of adequate avian habitat for species following wildfire events. Snags will be retained as recommended by reviewing DNRC and CS&K Tribal wildlife biologists. There would be no adverse cumulative effect to wildlife as a result of the proposed project. (See Attachment 2, Specialist Reports; Attachment 5, Effects/Cumulative Effects).

. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES: Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Sensitive Species or Species of special concern?	[N] Direct use by T&E species has not been indicated in the wildlife biologists reports (See Attachment 2, Specialist Reports). Cumulative Effects are detailed in Attachment 5.
10. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archaeological or paleontological resources present?	[N] The project area has been reviewed by a DNRC archeologist and the Confederated Salish and Kootenai Tribes. Significant sites or artifacts have not been located or identified.
11.AESTHETICS: Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?	[Y] Portions of the project area are visible from State Highway 382 and ranches in the southern area of Camas Prairie.
12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY: Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?	[N]
13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA: Are there other studies, plans or projects on this tract?	[N]

III. IMPACTS ON THE HUMAN POPULATION

Resource	Y/N) Potential Impacts and Mitigation Measures
14. HUMAN HEALTH AND SAFETY: Will this oject add to health and safety risks in the rea?	[N]
15. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION: Will the project add to or alter these activities?	[Y] Timber harvest will provide continuing industrial production in the Plains area. Establishment of regeneration will return this section to productivity for future Trust management activity. Recommendations have been submitted to the appropriate bureau to suspend grazing on this section for a minimum of two years. Evaluation for appropriate grazing AUM's will be made at that time.
16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so estimated number.	[N]
17. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue?	[N]
18. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc) be needed?	[Y] Log trucks hauling to the purchasing mill will result in temporary increases in traffic on Cottonwood Creek Road and Montana Highway 382. This use is a normal contributor and would occur at this or another location as logging activity moves around the countryside and cannot be considered a new or increased source.
19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?	[Y]All activities conducted on this section are designed under guidance provided by the State Forest Land Management Plan and the Confederated Salish and Kootenai Tribes. One DNRC Grazing Permit is currently in place on Section 16. CS&KT has grazing allotments in place on land adjacent to the State section.

20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES: Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?	[N]
21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing?	[N]
22. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?	[N]
23. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?	[N]
24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES: Is there a potential for other future uses for easement area other than for timber management? Is future use hypothetical?	[Y] Future economic benefit to the Trust from this section will center on the reestablishment of vegetation in the area. Timber production, recreation, wildlife easement, or other future development or use would all benefit from timely vegetative recovery. Economics associated with the proposed project are detailed in Attachment 5, Effects/Cumulative Effects.

EA Checklist prepared By: Larry Ballantyne, Timber Management Supervisor (T), Kalispell/Plains Unit, Montana DNRC, October, 2000

ignature: ______________________ Date: 11/16/00

IV. FINDING

25. ALTERNATIVE SELECTED:	The Action Alternative as proposed by the project leader meets the project objectives. It complies with all pertinent environmental laws, DNRC State Forest Land Management Plan, and a consensus of professional opinion on limits of acceptable environmental impact. The No Action Alternative does not meet any of the project objectives. It provides no income recovery from the fire damaged timber which otherwise would be lost. It does nothing to address the environmental issues created by the wildland fire, correcting them, or trying to help reestablish a new forest in the burned area. For these reasons, the action alternative is selected.
26. SIGNIFICANCE OF POTENTIAL IMPACTS:	After thorough review of the project file and all scoping documents, I find all identified resource concerns have been fully addressed in this environmental assessment. The action alternative provides for salvaging the fire killed timber resource and providing income to the Trust now, instead of a resource value loss. The project also provides for helping develop a new forest for the future. There are no significant impacts to the human environment as a result of implementing the Action Alternative. No further analysis is needed.

27. Need for Further Environmental Analysis:

[ ] EIS [ ] More Detailed EA [X] No Further Analysis

EA Checklist Approved By: William F. Wright Kalispell-Plains Unit Mgr
Name Title

Signature: Date: 11.16.00

LIST OF ATTACHMENTS

Attachment 1: Project Area Maps....................................3 Pages

Attachment 2: Specialist Reports.................................... 11 Pages

Water/Fish/Soils - - - - - - - Page 1 - 6
Wildlife - - - - - - - - - - - - - Page 7 – 11

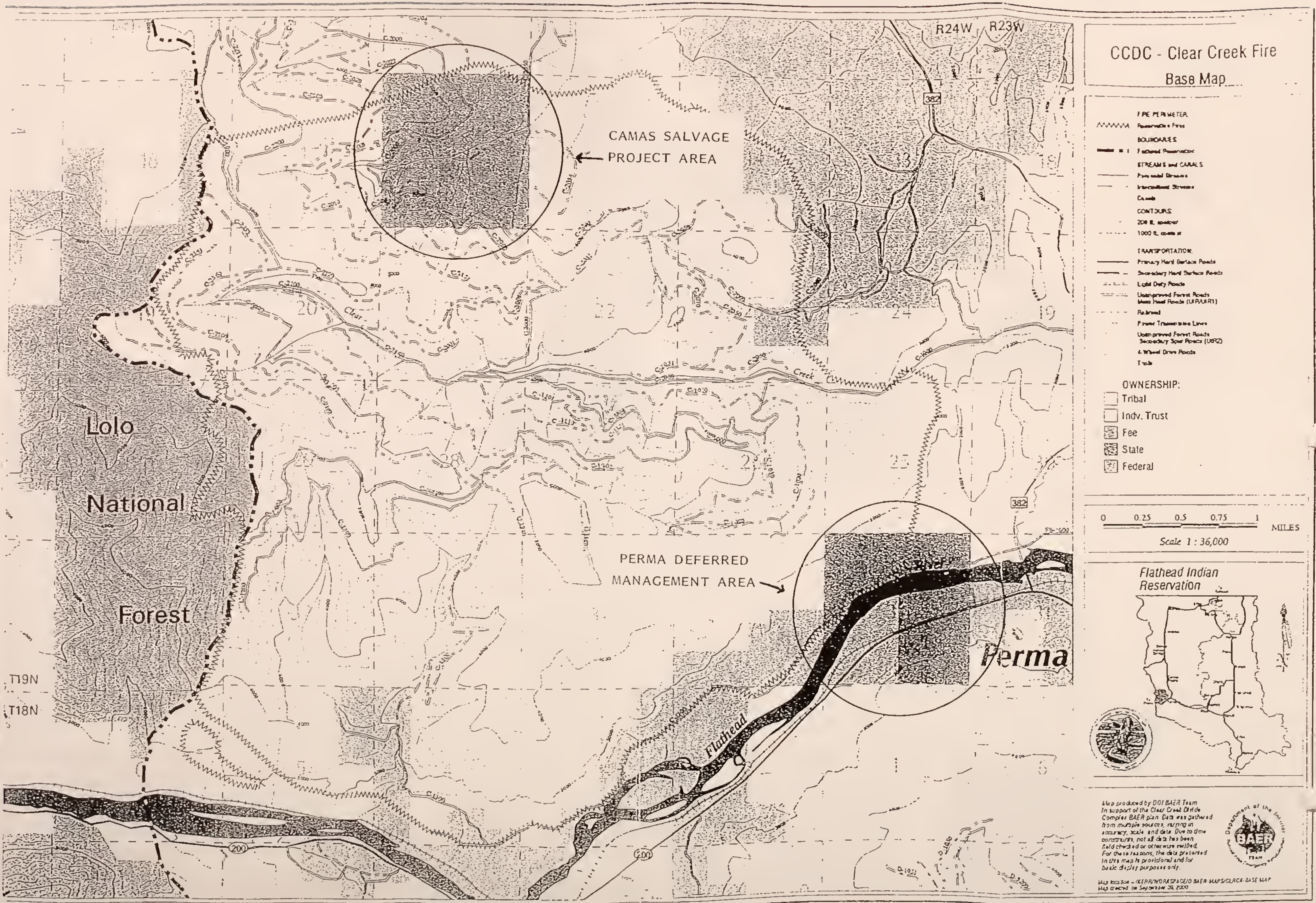
Attachment 3: Silvicultural Prescriptions............................. 10 Pages

Attachment 4: Biodiversity Analysis...................................13 Pages

Attachment 5: Effects/Cumulative Effects Summary.................. 3 Pages

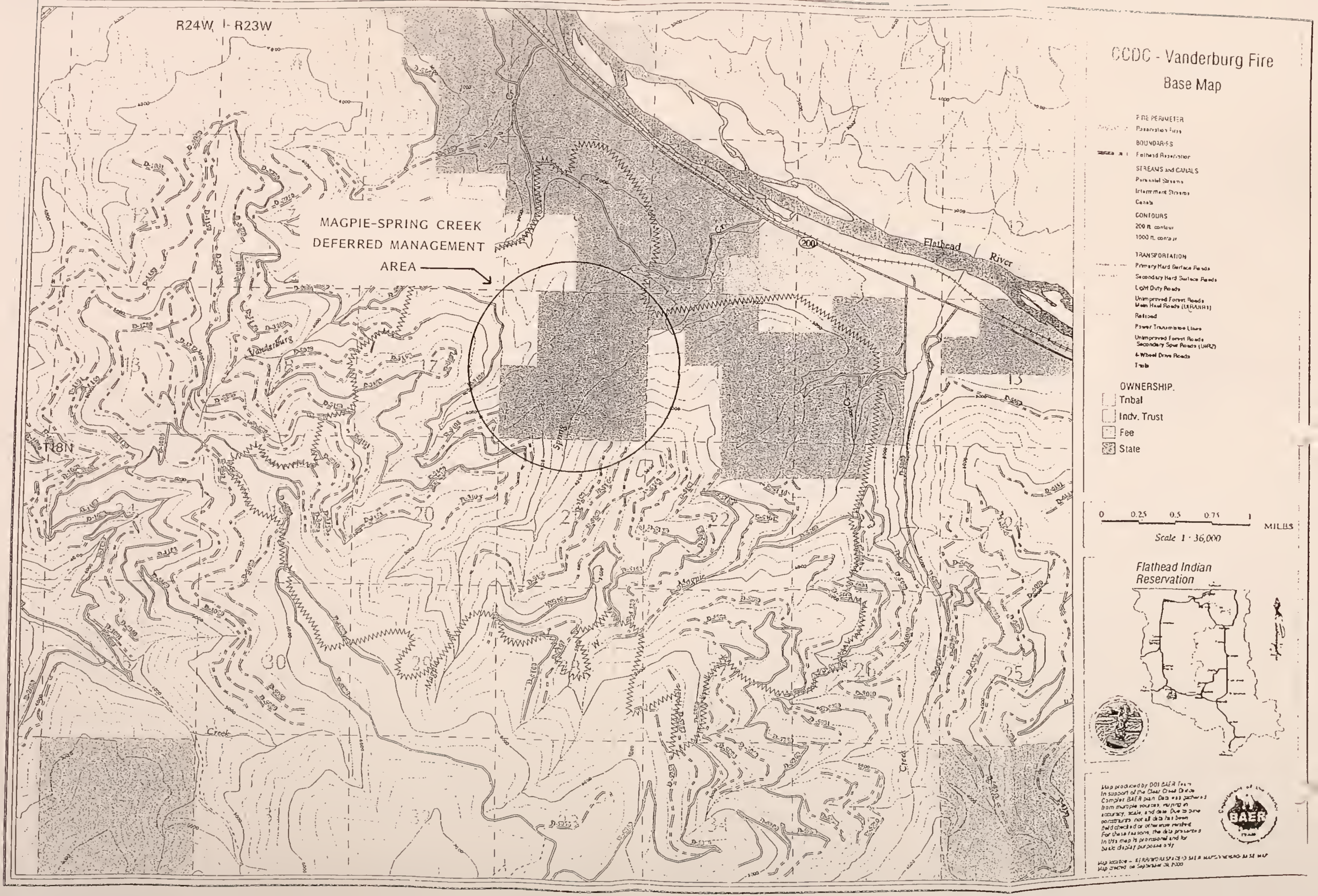
Attachment 6: Mitigation Measures...................................... 1 Page

Attachment 7: Consultants and References............................. 2 Pages



Map produced by DOI BAER Team In support of the Clear Creek Divide Complex BAER plan. Data was gathered from multiple sources, varying in accuracy, scale, and date. Due to time constraints, not all data has been field checked or otherwise verified. For these reasons, the data presented in this map is provisional and for basic display purposes only.

Map location – /KERR/WORKSPACE/D BAER MAPS/CLRCK-BASE MAP
Map created on September 28, 2000

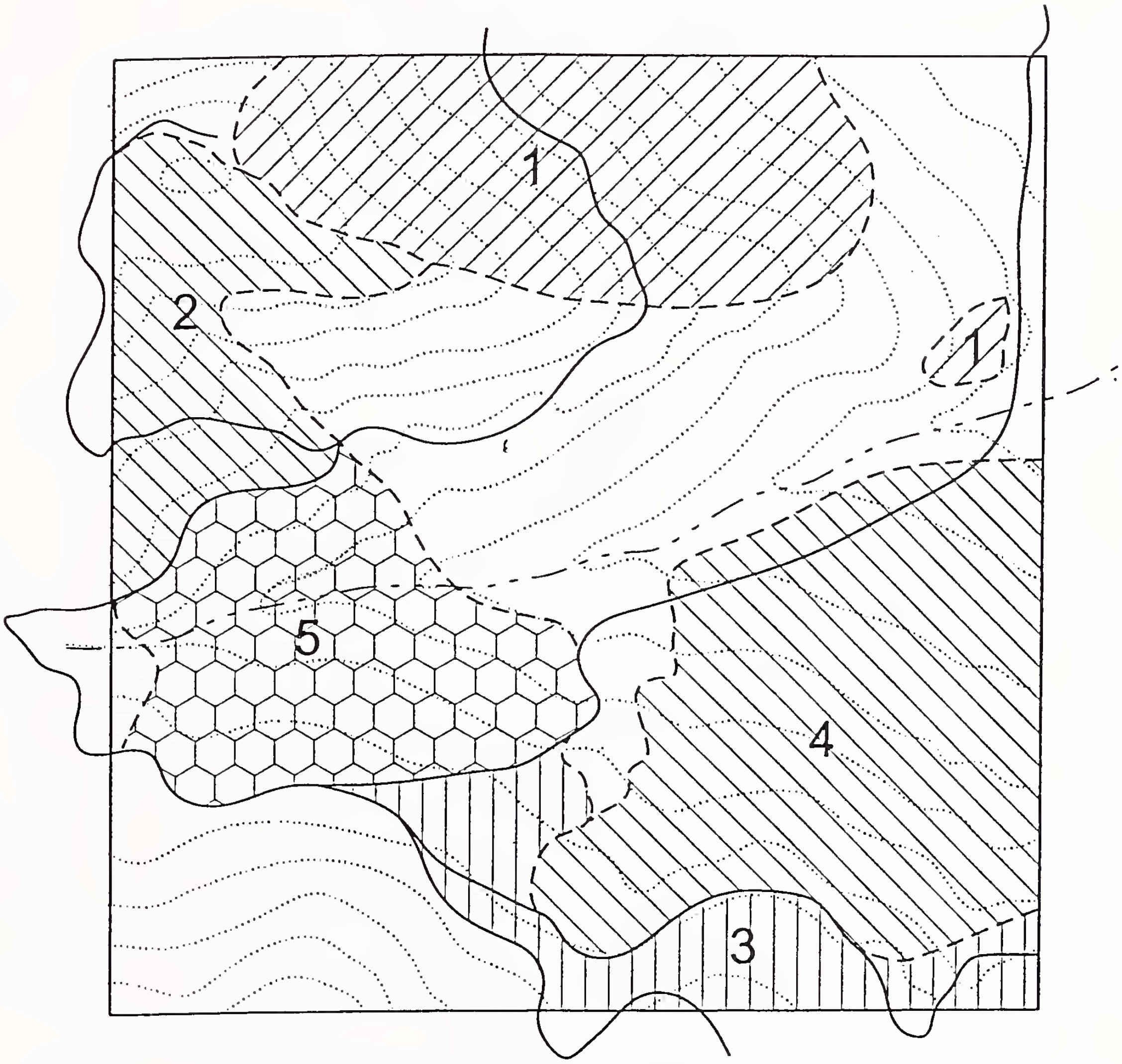


Map produced by DOI BAER Team In support of the Clear Creek Divide Complex BAER plan. Data was gathered from multiple sources, varying in accuracy, scale, and date. Due to time constraints not all data has been field checked or otherwise verified. For these reasons, the data presented in this map is provisional and for basic display purposes only.

Map location – [illegible]
Map created on September [illegible], 2000

Harvest Plan & Transportation System

Section 16, T19N, R24W



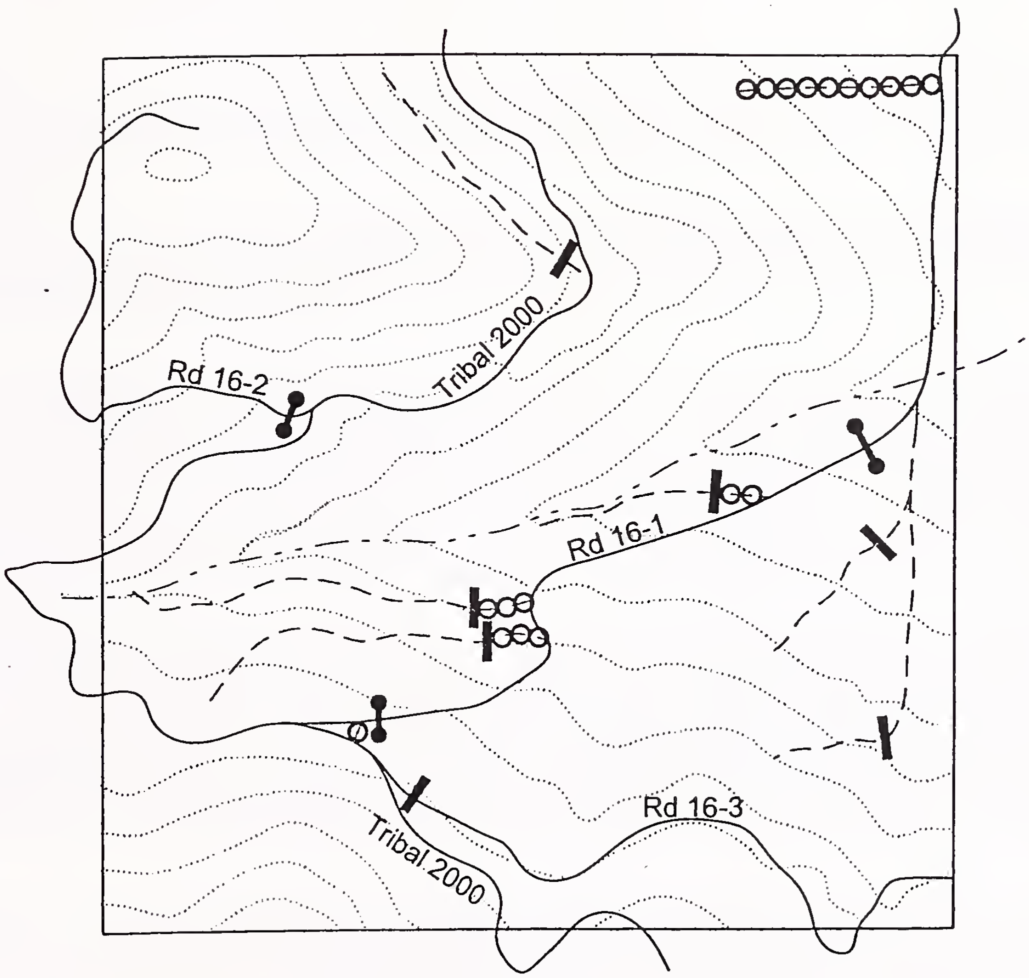
LEGEND

Unit Number	1
Unit Boundary	- - - - - -
Intermittent Stream	— · - · — ·
Existing Road	————
Contour Line	··················

Unit	System	Acres	Volume (Tons)
1	Tractor	103	2678
2	Tractor	54	1404
3	Tractor	52	2730
4	Tractor	149	7748
5	Cable	52	1690
Total		410	16250

Existing Roads & Closure Plan

Section 16, T19N, R24W



LEGEND	
Earthen Closure	▬
Gate	●–●
Low Standard Road	- - - - -
Existing Road	———
Obliteration	⊖⊖⊖⊖⊖
Contour Line	·········

To: Larry Ballantyne

CC: Tony Nelson, Allen Wolf

From: Marc Vessar

Date: October 11, 2000

Subject: Camas Salvage Analysis for Water/Fish/Soils

Analysis Area

The proposed Camas Salvage Timber Sale is located approximately six miles east of Paradise, Montana in section 16, T19N, R24W. The project area is drained by an unnamed tributary to Camas Creek. Camas Creek is a tributary to the Flathead River.

Elevations in the project area range from 3360 feet on the eastern boundary where the unnamed tributary to Camas Creek leaves the section to approximately 4400 feet on the southern boundary of the section. Annual precipitation within the state parcel is less than 20 inches.

Water Uses and Regulatory Framework

This portion of the Flathead River basin, including the Camas Creek watershed is classified as B-1 by the State of Montana Department of Environmental Quality (DEQ), as stated in the Administrative Rules of Montana (ARM 17.30.607). The water quality standards for protecting beneficial uses in B-1 classified watersheds are located in ARM 17.30.623. Water in B-1 classified waterways is suitable for drinking, culinary and food processing purposes after conventional treatment, bathing, swimming and recreation, growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers, and agricultural and industrial water supply.

State water quality regulations prohibit any increase in sediment above naturally occurring concentration in water classified B-1. Naturally occurring means condition or materials present from runoff or percolation over which man has no control or from developed land where all reasonable land, soil and water conservation practices have been applied. Reasonable land, soil and water conservation practices include methods, measures or practices that protect present and reasonably anticipated beneficial uses. The State of Montana has adopted Best Management Practices (BMPs) through its non-point source management plan as the principle means of meeting the Water Quality Standards.

The Clean Water Act (CWA) and the EPA Water Quality Planning Regulations require each state to identify watersheds that contain water quality limited segments. A WQLS is a portion or entire lake, stream or other body f water that is not fully meeting state water quality standards or have intended beneficial uses that are being threatened. The State of Montana has published a list of WQLS in a document titled the Montana 305(b) Report. Camas Creek was listed as needing a TMDL in the 1996 303(d) list. The 2000 303(d) list does not include Camas Creek because it does not fall under the jurisdiction of Montana DEQ, instead, this stream is under the jurisdiction of the CS&KT.

All rules and regulations pertaining to the Streamside Management Zone (SMZ) Law and Confederated Salish and Kootenai Tribes (CSKT) Best Management Practices (BMP). When conflicting requirements are recommended, the most restrictive recommendation will be followed.

Water Rights and Beneficial Uses

Water rights for surface water exist on Camas Creek and the unnamed tributary crossing the state parcel for stock watering, irrigation, lawn and garden use and domestic use.

Water Resource Measure Indicators and Methodology

The methods applied to the project area to evaluate potential cumulative effects include the Rosgen Stream Classification and the R-1 Channel Stability Rating (Pfankuch, 1975). The tools were deemed the most appropriate to provide information on stream channel form, function and resistance to change

Cumulative water yield increase percentage was calculated using the Equivalent Clearcut Acres (ECA) method outlined in Forest Hydrology Part II (Haupt et al. 1974).

Cumulative Watershed Effects

Cumulative watershed impacts are defined as impacts that result from combined past activities in the watershed. Timber harvest and associated activities affect the timing, distribution and amount of water yield in a watershed. Water yields increase in proportion to the percentage of canopy removed because removal of live trees reduces the amount of water transpired, leaving more available for soil saturation and runoff. Canopy removal also decreases interception of rain and snow and alters snowpack distribution and snowmelt which leads to further water yield increases. Higher water yields may lead to increases in peak flow and peak flow duration, which could result in accelerated streambank erosion and deposition of fine sediment.

Existing Condition

Hydrology

The stream that runs through the state section is a second order unnamed tributary to Camas Creek. Approximately 2,150 acres contribute flow to the stream. This unnamed stream is a class I stream from the confluence with Camas Creek upstream to the middle of the state parcel. The remainder of the stream is mainly class III with a few inclusions of class II. The description of stream classes can be found in the CSKT BMP manual.

The bankfull width of the unnamed tributary is approximately four feet. Channel bottom material ranges from irregular shaped cobbles down to silt. The channel is relatively straight with few meanders and a slope varying from less than 1% near the confluence with Camas Creek to greater than 10% in the headwaters. Base flow conditions generally are shallow and would not support a fish population.

The riparian area within the state parcel varies in condition due to land uses and recent fire activity. The lower portion of the stream, near the eastern boundary of the section has had considerable use by livestock. The road crossing along the eastern boundary has the majority of the livestock use. Trails along the creek and bank trampling are prominent in this area. Hardwoods, grasses and forbs are present in this area, however most of the brush is decadent with limited regeneration. The portion of the stream above this road crossing upstream through the middle of the section has the riparian area generally intact. Grasses, forbs, brush and trees are found throughout this area. In a few places, the Clear Creek fire burned at a low intensity potentially killing a few of the trees. The riparian area in the western portion of the section burned at a higher intensity, killing a large majority of the trees.

Camas Creek is a tributary to the Flathead River. During September 2000, Camas Creek below the project area was intermittently dry.

Cumulative Effects

Within the state section, approximately 610 acres was part of the Clear Creek Fire. Approximately 70 acres on state land had moderate burn intensity to soil resources. The remaining acres on state land had low burn intensity. Approximately 1520 acres of the tributary watershed burned. Moderate intensity fires occurred on 480 acres of the watershed and low intensity fire occurred on the remaining 1040 acres (Clear Creek Divide Complex BAER Plan, 2000).

Water yield increases are expected due to the fire since most of the timbered portion of the tributary watershed was burned at low or moderate intensity. Assuming an average of 90% crown removal over the entire burned area in the watershed, the water yield increase for the tributary to Camas Creek is estimated at 28% over a fully stocked level.

Camas Creek will receive increased annual water yields from tributaries that drain the Clear Creek Fire area. There is potential for additional bank erosion from this increase due to the fire.

Fisheries

Due to the hydrologic nature of the tributary to Camas Creek described above, it is unlikely that any fish populations exist in this stream.

Information from the CSKT fisheries biologist indicates that no westslope cutthroat trout are found in Camas Creek below the project area. Fish species present in this reach of Camas Creek include pike minnow, large-scale suckers and red-sided shiners (Shawn Cross, pers. comm).

Soils

Geology/Soils

The parent material for the soils is non-calcareous argillites and quartzites of the Ravalli group and Pritchard formation. Wave sorting of gravels by glacial lake Missoula may be apparent on protected slopes below 4200 feet. No especially unique or unstable geologic sites were noted in the project area. A description of each landtype is listed below.

Landtype 30.U-8AB (Mountain sideslopes of 20-40%)

Soils in this landtype are generally rocky and well drained with a shallow duff layer. Slopes are moderately dissected by ephemeral drainages that typically flow only during runoff periods. Precipitation in the area is less than 20% which combined with the well drained soil type results in relatively droughty soils that generally supports grasslands or open stands of Ponderosa pine/ Douglas-fir.

Grass competition is a concern for regeneration of trees. Material found on site is good for road construction. The well-drained soils lend to a long season of use with only a short wet period when equipment operations limited. Due to the droughty nature of the soils, disturbed sites should be seeded promptly to improve regeneration success. Bare soils, skid trails and firelines have a moderate erosion hazard. Sediment delivery efficiency is moderate.

The northeastern portion of the section is vegetation almost solely by grasses and forbs. The soils in this area are likely comprised of gravelly loam with surface soils 10-20 inches deep.

Environmental Effects

Effects of Activities on Water Quality

Land management activities such as road construction, timber harvest and grazing can potentially increase fine sediment production and delivery to waterbodies if not properly designed.

No Action Alternative

Under this alternative, no timber harvest or road improvements would be implemented. The area burned by the fire would regenerate in time. In the short term, an elevated amount of fines would likely enter the stream due to the lack of filtration on the landscape in the form of vegetation. In the long term, the burned area would revegetate to pre-fire conditions and provide a vegetative filter.

The springs that cross the road in the center of the section would continue to erode the surface of the road until a channel is cut across the road.

Livestock would continue to use the section and use the stream as a water source.

Action Alternative

Approximately 410 acres of the state section would be treated with a silviculture prescription. Drainage improvements would be implemented on all roads within the state section. The SMZ width of 100 feet on each side of the stream would not be harvested on class I and class II streams. Trees less than 10" diameter breast height would be left on site. As these trees fall over they will be employed as sediment fences. In the short term, an elevated amount of fines would likely enter the stream due to the lack of filtration on the landscape in the form of vegetation. In the long term, the burned area would revegetate to pre-fire conditions and provide a vegetative filter.

Road improvements made where the springs cross the road near the center of the section would reduce the amount of sediment routed to the main stem of the tributary to Camas Creek.

Livestock would continue to use the section and use the stream as a water source.

Cumulative Watershed Effects

No Action Alternative
No timber harvest or road construction activities are proposed under this alternative, therefore no water yield increase would result from implementation of this alternative. Water yield would continue at or near the current level and would decline as the fire area within the watershed regenerate and move closer to pre-disturbance levels. Livestock would continue to use the section and use the stream as a water source.
Action Alternative
Approximately 410 acres of timber harvest would be implemented under this alternative. Since only dead trees would be harvested, no increase in the annual water yield is expected due to the harvest. Since no timber harvest would be implemented in the SMZ, units adjacent to SMZ's would be harvested using a cable system and BMPs would be implemented, there would not likely be additional impacts to water quality from implementing this alternative. By implementing BMPs on existing roads and harvest units, potential sediment introduction into surface waterbodies is not like to result in adverse cumulative effects to water quality from this alternative. Livestock would continue to use the section and use the stream as a water source. No additional water yield to Camas Creek is expected due to timber harvest under this alternative.

Fisheries
No Action Alternative
No timber harvest or related activities would take place under this alternative. Considering that no fish are present in the tributary to Camas Creek, there would not likely be any change if this alternative were selected.

Action Alternative
Current fisheries habitat and populations would not likely be adversely affected with the implementation of this alternative due to the lack of fish in the tributary to Camas Creek.

Cumulative Fisheries Effects
No Action Alternative
No timber harvest or related activities would take place under this alternative. Considering that no fish are present in the tributary to Camas Creek, there would not likely be any change if this alternative were selected. Due to the low gradient portion of the tributary to Camas Creek, most of the additional fines from the fire will likely settle out prior to reaching Camas Creek.

Action Alternative
Current fisheries habitat and populations would not likely be adversely affected with the implementation of this alternative due to the lack of fish in the tributary to Camas Creek. Due to the low gradient portion of the tributary to Camas Creek, most of the additional fines from the fire will likely settle out prior to reaching Camas Creek.

Soil Effects
No Action Alternative
No timber harvest or related activities are associated with this activity. Dead trees within the fire area would eventually fall over due to rot or wind and contribute to nutrient cycling.

Action Alternative
Approximately 358 acres would be harvested using conventional tractor yarding. Up to 15% (54 acres) of the harvest unit area would be used for skid trails and landing. The implementation of BMPs would limit harvest operations to times of soil moistures of less than 20% or on frozen or snow-covered soils. This mitigation will reduce the soil disturbance (compaction or displacement) and protect soil productivity.

Trees less than 10" diameter breast height will also be left in the units to provide for nutrient cycling and maintain/improve soil productivity.

Cumulative Soil Effects
No Action Alternative
No timber harvest or related activities are associated with this activity. Dead trees within the fire area would eventually fall over due to rot or wind and contribute to nutrient cycling.

Action Alternative

Approximately 358 acres would be harvested using conventional tractor yarding. Up to 15% (54 acres) of the harvest unit area would be used for skid trails and landing. Existing skid trails would be used to reduce cumulative impacts. The implementation of BMPs would limit harvest operations to times of soil moistures of less than 20% or on frozen or snow-covered soils. Future harvest opportunities would likely use the same road system, skid trails and landing sites to reduce additional cumulative impacts. Large woody debris would be retained for nutrient cycling long-term soil productivity.

Trees less than 10" diameter breast height will also be left in the units to provide for nutrient cycling and maintain/improve soil productivity.

GENERAL MITIGATION MEASURES:

*Limit equipment operations to periods when soils are relatively dry, (less than 20%), frozen or snow covered to minimize soil compaction and rutting, and maintain drainage features. Check soil moisture conditions prior to equipment start-up.

*On ground skidding units, the logger and sale administrator will agree to a general skidding plan prior to equipment operations. Skid trail planning would identify which main trails to use, and what additional trails are needed. Trails that do not comply with BMP's (i.e. draw bottom trails) would not be used and may be closed with additional drainage installed where needed or grass seeded to stabilize the site and control erosion.

*Tractor skidding should be limited to slopes less than 45%. Short steep slopes above incised draws may require a combination of mitigation measures based on site review, such as adverse skidding to ridge or winch line skidding from more moderate slopes less than 45%.

*Skidders should be limited to JD 650 or smaller rubber tired skidders, unless on snow and adequate protection of surface soils is maintained.

- Retain 10 to 15 tons large woody debris and all fine litter feasible following harvest.

Literature Cited

Collins, Jeff; Ottersberg, Robert. 1985. Plains Unit Soil Survey.

Cross, Shawn. September 2000. Personal Communication.

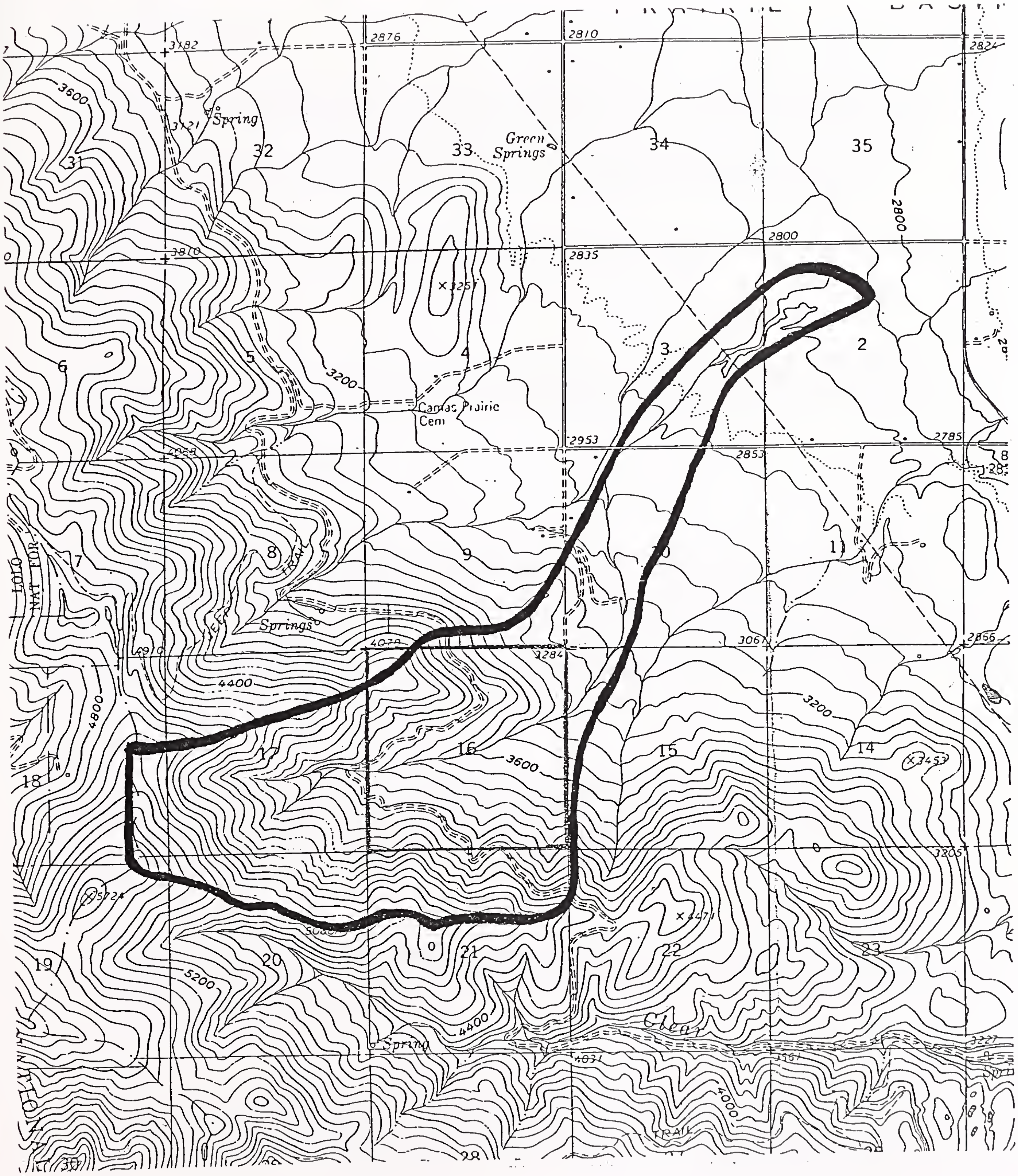
Haupt et al. 1974. Forest Hydrology Part II: Hydrologic Effects of Vegetation Manipulation. USDA Forest Service.

Northern States Burned Area Emergency Rehabilitation Team. September 2000. Clear Creek Divide Complex BAER Plan.

Pfankuch, D.J. 1975. Stream reach inventory and channel stability evaluation. USDA Forest Service, R1-75-002.

WATERSHED ANALYSIS

AREA



Camas Creek Fire Salvage– WILDLIFE ASSESSMENT

AFFECTED ENVIRONMENT

COARSE FILTER

The Department of Natural Resources and Conservation (DNRC) attempts to promote biodiversity by taking a coarse filter approach thereby favoring an appropriate mix of stand structures and compositions on state lands (DNRC 1996). Appropriate stand structures are based on ecological characteristics (e.g., land type, habitat type, disturbance regime, unique characteristics). A coarse filter approach "assumes that if landscape patterns and process (similar to those species evolved with) are maintained, then the full compliment of species will persist and biodiversity will be maintained" (Jensen and Everett, 1993).

Aerial photos and field observations of the surrounding area indicate adjacent ownership has been affected by timber harvest in recent decades, and by extensive wildfire in summer 2000.

FINE FILTER

DNRC cannot assure that the coarse filter approach will adequately address the full range of biodiversity, and therefore DNRC also employs a 'fine filter' approach for threatened, endangered, and sensitive species. The fine filter approach focuses on a single species' habitat requirements (DNRC 1996).

Threatened and endangered species:

Bald eagle:

Bald eagles are generally associated with lakes or rivers in Montana. The accepted home range for a breeding pair of bald eagles is a radius of 2.5 miles (MBEWG 1994). No known active bald eagle nest is within 2.5 miles of the Camas section. As of 1996, nests on the Flathead River were approximately 10-20 miles from the proposed harvest on the Camas Creek section. The home ranges of eagles on the Flathead River are most likely elongated following the river corridor more extensively than upland areas. There would be no effect to these nest areas from the proposed timber harvest on the Camas Creek section. Therefore, this species will not be discussed in the Environmental effects section.

Grizzly bear:

The project area is outside of the northern continental divide and Cabinet-Yaak ecosystem grizzly bear recovery areas. Presently, grizzly bears are not known to consistently inhabit the proposed project area. Also, burned forest stands provide relatively low amounts of security cover for this species. Therefore, this species will not be discussed in the Environmental effects section.

Wolf:

Historically, wolves have occupied the area but at present are not known to use the area for denning or rendezvous activity. Wolves and wolf sign has been observed in the Thompson River drainage 10-15 air miles west and northwest of the project area.

Lynx:

The project area is neither lynx denning or foraging habitat. Typical lynx denning habitat consists of mature spruce-fir with abundant coarse woody debris; typical lynx foraging habitat consists of younger lodgepole pine, or other habitats with relatively abundant snowshoe hare. The proposed project area does not contain these habitats. Therefore, this species will not be discussed in the Environmental effects section.

Sensitive species:

Black-backed woodpecker:

Black-backed woodpeckers, as well as other species of cavity-nesting insectivorous birds, use post-fire forests for foraging and nesting (Hutto 1995). Nest trees for black-backed woodpeckers average 12-13" DBH (Hejl et al. 2000, O'Connor 2000). The Camas Creek section contains approximately 410 acres of burned area (250 acres of stand replacement severity, 160 acres of mixed severity fire). The Magpie Creek section contains approximately 300 acres of 100 year or older forest stands within the burned area (100 to 150 acres of stand replacement severity with the remaining portion being of mixed severity). The Magpie section also contains 83 acres of 40-99 year old forest stands within the burned area.

Peregrine falcon:

Although peregrine falcons have been de-listed from threatened status (Federal Register, Volume 64, Number 164), the species is regarded as a sensitive species and will be taken into consideration when present. There is no preferred nesting habitat (cliffs, rock outcrops) within the project area, although possible nesting and probable foraging habitat occurs on the nearby Flathead River. Therefore, this species will not be discussed in the Environmental effects section.

Fisher:

In the western United States, including northwestern Montana, fisher avoid openings and prefer mature to old forest stands with at least moderate canopy closure containing large live trees, snags, and downed logs (Ruggiero et al. 1994). Fisher use forested riparian areas for travel corridors and resting habitat (Jones 1991). There are 28 acres of mature stands with moderate canopy closure in the unburned streamside management zones on the Camas Creek section which will remain unharvested. Stand conditions in the state-owned burned area are not preferred fisher habitat. Large portions of the surrounding area are either burned forest stands or dry, warm habitat. Neither of these conditions are preferred fisher habitat. Therefore, this species will not be discussed in the Environmental effects section.

Pileated woodpecker:

Preferred pileated woodpecker habitat consists of mature and old forest stands with at least moderate canopy closure containing large live and dead western larch, ponderosa pine, and to some extent Douglas-fir. Pileated woodpecker nest and roost trees are generally greater than 20 inches in diameter at 4.5 feet above the ground (Bull 1987). Within the burned area, there are mature ponderosa pine or western larch, although canopy closure levels are low to non-existent. Preferred pileated woodpecker habitat, in terms of stand maturity and canopy closure, exists only in the unburned streamside management zones on the Camas Creek section (28 acres).

Ungulate Thermal and Security Cover:

White-tailed deer, mule deer, and elk use the Camas Creek section. Thermal and security cover exists within the 28 acres of unburned streamside management zones. Marginal security cover exists within the burned area.

ENVIRONMENTAL EFFECTS

FINE FILTER

Threatened and Endangered Species

Wolf:

No-action Alternative

No increase in the potential for human-caused mortality, due to increased open road density or decrease in vegetative cover, would occur under this alternative. No effects to wolves would be expected to occur should this alternative be selected.

Action Alternative

The proposed project should have little to no effect on this species as 1) wolves are not known to consistently inhabit the proposed project area, 2) a decrease from 4 to 2.5 miles of existing open road would occur through gate installation, and all minor unimproved roads would also be closed, and 3) prior to harvest, burned forest stands provide relatively low amounts of security cover for this species. An active wolf den or rendezvous site would cause a temporary cessation of timber harvest during critical time periods.

Cumulative Effects

The proposed project combined with current, past, and future projects on adjacent ownerhip would reduce vegetative cover, burned and unburned, which provides security for wolves from human disturbance and human-caused mortality.

Sensitive species:

Black-backed woodpecker:

Black-backed woodpeckers habitat occurs on both the Camas Creek and Magpie Creek sections. The analysis area for this species will include both state sections.

No-action Alternative

Under the no-action alternative, black-backed woodpecker habitat on state property would not be affected. The proposed project area would provide feeding, roosting, and nesting habitat across a majority of the burned areas within both state sections. Within the general vicinity of both state sections, the extent of salvage harvesting of burned areas on adjacent ownership will affect the ability of cavity-nesting bird species to reproduce at levels similar to natural levels on non-salvaged areas. Areas adjacent to the Camas Creek section will be salvage harvested by the Confederated Salish and Kootenai Tribes. A certain portion of the area adjacent to the Magpie Creek section will also be salvaged harvested in a similar manner by the Confederated Salish and Kootenai Tribes, although the ability to do so may be diminished due to steep topography and the relative lack of existing roads.

Action Alternative

Combining both the Camas Creek and Magpie sections, 301.6 of 711.6 acres (42%) of mature forest (>100 years old) within the burned area perimeter would be retained, representing varying severity types, in an undisturbed condition. Including 83 acres of 40-99 year old forest stands within the Magpie Creek section, 54% of the burned area on both sections would be retained in an undisturbed condition. The proposed project would harvest 410 acres of burned area on the Camas Creek section. On the Camas Creek section, a certain number of large live ponderosa pine and western larch would be retained if their survival appeared probable, and would be possible snag recruits. Retention of 2-4 large (≥15" DBH) snags per acre would occur on burned areas within the Camas Creek section, and all sub-merchantable and non-merchantable fire-killed trees would also be retained. In summary, combining both sections, 43% of the mature burned area and 53% of the forested area greater than 40 years old would be retained in an undisturbed condition, representing all fire severity types present. The maximum amount of feeding, roosting, and nesting habitat possible is retained on the Magpie Creek section, which would remain unharvested for at least 5 years. A certain capacity for cavity-nesting bird species to use the Camas Creek section would occur, yet at a diminished level (Hejl et al. 2000).

Cumulative Effects

The DNRC causes an additive effect of possible lower reproduction by all cavity-nesting bird species in the general vicinity of the Camas Creek section, while adding no cumulative effect in the vicinity of the Magpie section. Aerial photos and field observations of the surrounding area indicate adjacent ownership has been affected by timber harvest in recent decades, and by extensive wildfire in summer 2000. To the extent burned areas on adjacent ownership is areas are harvested, habitat for cavity-nesting species would be reduced to some extent.

Pileated woodpecker:

No-action Alternative

Under the no-action alternative, existing pileated woodpecker habitat would not be affected. The proposed project area would provide feeding and marginal nesting habitat within burned areas. Nesting habitat is marginal due to relative lack of large diameter ponderosa pine and western larch.

Action Alternative

Preferred pileated woodpecker habitat, in terms of canopy closure and stand maturity, presently exists in the unburned streamside management zones on the Camas Creek section (28 acres); these areas would remain unharvested. As vegetative succession occurs, the retention of some large live trees and snags on the Camas Creek section would allow the harvested areas to recover to habitat beneficial to the life requirements of insectivorous birds in a shorter time period. Within the burned areas of both sections there are recently dead large western larch or ponderosa pine, although at low densities in certain stands. Snag retention guidelines on the Camas Creek section would retain 2-4 dead trees >15" per acre. In order of preference, western larch, ponderosa pine, or Douglas-fir would be retained. Western larch, with sapwood that decays relatively slowly, would have the highest probability of remaining standing as the area regenerates into mature stands (McClelland 1999).

Cumulative Effects

The proposed project would reduce present and future snag abundance; combined with current, past, and future projects on adjacent ownerhip, snags would be less available in the general vicinity of the project area.

Ungulate Thermal and Security Cover:

No-action Alternative

Under the no-action alternative, existing ungulate habitat would not be affected. The proposed project area would provide forage and security cover within the unburned areas, and marginal security cover within burned areas.

Action Alternative

The proposed project would have the effect of reducing ungulate security cover on the Camas Creek section, although 1) a decrease from 4 to 2.5 miles of existing open road would occur through gate installation, and all minor unimproved roads would also be closed, and 3) prior to harvest, burned forest stands provide relatively low amounts of security cover for ungulates. Thermal cover has presumably been reduced substantially within the burned areas and would not be further reduced by the proposed action.

Cumulative Effects

Current, past, and future projects on adjacent ownerhip have reduced vegetative cover, burned and unburned, that could provide security for ungulates from human disturbance and human-caused mortality. The proposed project causes a minor additive loss in security cover.

Literature Cited:

Bull, E.L. 1987. Ecology of the pileated woodpecker in northeastern Oregon. Journal of Wildlife Management. 51: 472-481.

DNRC (Montana Department of Natural Resources and Conservation). 1996a. Record of Decision, State Forest Land Management Plan.

DNRC (Montana Department of Natural Resources and Conservation). 1996b. Biodiversity Implementation Guidance, State Forest Land Management Plan.

Hejl, S.J., M. McFadzen, and T.E. Martin. 2000. Maintaining fire-associated bird species across forest landscapes in the Northern Rockies. Final Report INT-99543-RJVA. Rocky Mountain Research Station - Forestry Sciences Lab, Missoula, MT. 20 pp.

Hutto, R. L. 1995. Composition of bird communities following stand-replacement fires in Northern Rocky Mountain (U.S.A.) conifer forests. Conservation Biology 9(5): 1041-1058.

Jensen, M. E., and R. Everett. 1993. An overview of ecosystem management principles in Eastside Forest Ecosystem Health Assessment. Vol. II. Ecosystem Management: Principles and Applications. M.E. Jenson and P.S. Bourgeron, editors. USDA, National Forest System, Forest Service Research, pp 9-18.

Jones, J.L. 1991. Habitat use of fisher in northcentral Idaho. M.S. Thesis, University of Idaho, Moscow, Idaho. 147 pp.

MBEWG (Montana Bald Eagle Working Group). 1991. Habitat management guide for bald eagles in northwestern Montana. United States Department of Agriculture Forest Service Northern Region. 29pp.

McClelland, B.R., and P.T. McClelland. 1999. Pileated nest and roost trees in Montana: links with old-growth and forest "health". Wildlife Society Bulletin 27 (3): 846-857.

O'Connor, T. 2000. Pers. comm., U.S. Forest Service, Plains/Thompson Falls R.D., Lolo National Forest, Plains, MT.

PROPOSED CAMAS SALVAGE TIMBER SALE
TIMBER STAND/HARVEST UNIT PRESCRIPTIONS

****

Harvest Unit: 1 **Harvest Unit Acres:** 103

Elevation: 3600′-4000′ **Slope:** 45% **Aspect:** East

Habitat Types: PSME/PHMA

Soil Type: Deep, well drained, texture is gravelly loam to sandy loam with some intermittent volcanic ash influence.

Description of Existing Stand: The stand comprising this salvage unit was totally consumed by the Clear Creek Divide fire of August 2000. A high intensity crown fire eliminated all living vegetation in this area. A long duration ground fire followed and eliminated all material from the forest floor. In many areas all organic material has been burned from the soil leaving only rock cobble. This unit lies on an eastern aspect immediately adjacent to the grassland of Camas Prairie. Some large diameter Ponderosa pine bordering the grassland were bypassed by the crown fire and survived the ground fire as well. Prior to the fire this stand was composed of Douglas-fir (50%), Ponderosa pine (40%), and western larch (10%). This stand averaged 110 years in age, but scattered older trees were present at the lower elevations bordering the grassland. Average DBH of salvageable timber ranges from 12″ to 20″. Height of salvageable trees averages 65′to 80′, with western larch occasionally reaching 100′. Ponderosa pine, both living and fire killed, are now under intense attack by a variety of bark beetles.

Treatment Objectives:

- Recover the economic value of the damaged timber.
- Promote conditions favorable to the recovery and regeneration of this area.

Prescribed Treatment:

- Remove fire killed merchantable timber.
- Retain living trees that exhibit potential for survival.
- Remove live trees currently under insect attack.
- Retain a minimum average of 4 snags > 14″ DBH per acre.
- Retain large diameter obviously cull trees.

Harvest Method:

- Tractor skidding is applicable for this unit. Existing roads are adequate for decking and hauling.

- Trees marked to leave.

Hazard Reduction:

- Lop and scatter all slash to a maximum depth of 18".

- Burn landing piles following harvest activity.

Regeneration/Site Preparation:

- Surviving trees will be left as possible seed source.

- Soil displacement associated with harvest activity will provide scarification to assist in the establishment of natural regeneration.

- Merchantability specifications will be adjusted to provide additional volume of down woody material to create increased potential for natural regeneration.

- Regeneration will be monitored following harvest activity. Planting will be considered in areas requiring assistance to natural regeneration.

Anticipated Future Treatment:

- Stand conditions and success of regeneration will be monitored on an annual basis. Planting to supplement natural regeneration will be considered where applicable and feasible.

- Evaluation for thinning will take place following the successful establishment of regeneration in this stand.

- Unexpected circumstances or developments will be evaluated for action on a case by case basis.

****

Harvest Unit: 2 **Harvest Unit Acres:** 54

Elevation: 3600'-4000' **Slope:** 45% **Aspect:** South

Habitat Type: PSME/PHMA

Soil Type: Deep, well drained, texture is gravelly loam to sandy loam with some intermittent volcanic ash influence.

Description of Existing Stand: The stand comprising this salvage unit was totally consumed by the Clear Creek Divide fire of August 2000. A high intensity crown fire eliminated all living vegetation in this area. A long duration ground fire followed and eliminated all material from the forest floor. In many areas all organic material has been burned from the soil leaving only rock cobble. This unit lies on a south aspect adjacent to the grassland of Camas Prairie. Prior to the fire this stand was composed of Ponderosa pine (65%) and Douglas-fir (35%) and trace representation of western larch. This stand averaged 110 years in age, but scattered older, large diameter Ponderosa pine were/are present at both the lower and upper elevations adjacent to the grassland. The crown fire bypassed a few of the older, larger trees, and they managed to survive the ground fire as well. Average DBH of salvageable timber ranges from 12″ to 20″. Height of salvageable trees averages 65′to 80′. Ponderosa pine, both living and fire killed, are now under attack by a variety of bark beetles.

Treatment Objectives:

- Recover the economic value of the damaged timber.
- Promote conditions favorable to the recovery and regeneration of this area.

Prescribed Treatment:

- Remove fire killed merchantable timber.
- Retain living trees that exhibit potential for survival.
- Remove live trees currently under insect attack.
- Retain a minimum of 4 snags > 14″ DBH per acre.
- Retain large diameter obvious cull trees.

Harvest Method:

- Tractor skidding is applicable for this unit. Existing roads are adequate for decking and hauling.
- Trees are marked to leave.

Hazard Reduction:

- Lop and scatter all slash to a minimum of 18″.

- Burn landing piles following harvest activity.

Regeneration/Site Preparation:

- Surviving trees will be left as possible seed sources.

- Soil displacement associated with harvest activity will provide scarification to assist in the establishment of natural regeneration.

- Merchantability specifications will be adjusted to provide additional volume of down woody material to create increased potential for natural regeneration.

- Regeneration will be monitored following harvest activity. Planting will be considered in areas requiring assistance to natural regeneration.

Anticipated Future Treatments:

- Stand conditions and success of regeneration will be monitored on an annual basis. Planting to supplement natural regeneration will be considered where applicable and feasible.

- Evaluation for thinning will take place following the successful establishment of regeneration in this stand.

- Unexpected circumstances or developments will be evaluated on a case by case basis.

****

Harvest Unit: 3 **Harvest Unit Acres:** 52

Elevation: 3800′ **Slope:** 30% **Aspect:** North

Habitat Type: PSME/PHMA

Soil Type: Deep, well drained, texture is gravelly loam to sandy loam with some intermittent volcanic ash influence.

Description of Existing Stand: The stand comprising this salvage unit was totally consumed by the Clear Creek Divide fire of August 2000. A high intensity crown fire eliminated all living vegetation in this area. A long duration ground fire followed and eliminated all material from the forest floor. Most areas have retained soil cover, but some locations have had all organic material burned leaving only rock cobble. This stand lies on a

midslope location of a ridge dividing this area from the Clear Creek drainage. Prior to the fire this stand was composed of Douglas-fir (70%), Ponderosa pine (15%), and western larch (15%). This stand averages 110 years in age, but scattered older trees are found throughout the stand. Average DBH of salvageable timber averages from 12″ to 20″. Height of salvageable trees averages 65′ to 80′. Ponderosa pine killed by the fire are now under attack by a variety of bark beetles.

Treatment Objectives:

- Recover the economic value of the damaged timber.
- Promote conditions favorable to the recovery and regeneration of this area.

Prescribed Treatment:

- Remove fire killed merchantable timber.
- Retain living trees that exhibit potential for survival.
- Remove live trees currently under insect attack.
- Retain a minimum average of 4 snags > 14″ DBH per acre.
- Retain large diameter obviously cull trees.

Harvest Method:

- Tractor skidding is applicable for this unit. Existing roads are adequate for decking and hauling.
- Seed trees marked to leave.

Hazard Reduction:

- Lop and scatter all slash to a maximum depth of 18″.
- Burn landing piles following harvest activity.

Regeneration/Site Preparation:

- Surviving trees will be left as possible seed source.
- Soil displacement associated with harvest activity will provide scarification to assist in the establishment of natural regeneration.

- Merchantability specifications will be adjusted to provide additional volume of down woody material to create increased potential for natural regeneration.

- Regeneration will be monitored following harvest activity. Planting will be considered in areas requiring assistance to natural regeneration.

Anticipated Future Treatments:

- Stand conditions and success of natural regeneration will be monitored on an annual basis. Planting to supplement natural regeneration will be considered where applicable and feasible.

- Evaluation for thinning will take place following the successful establishment of regeneration in this stand.

- Unexpected circumstances or developments will be evaluated for action on a case by case basis.

****

Harvest Unit: 4 **Harvest Unit Acres:** 149

Elevation: 3400'-3800' **Slope:** 15% **Aspect:** North/Northeast

Habitat Type: PSME/PHMA

Soil Type: Deep, well drained, texture is gravelly loam to sandy loam, with some volcanic ash influence.

Description of Existing Stands: Two timber stands comprise this unit. A high intensity ground fire of fairly long duration burned both. Some islands and narrow strips avoided the fire and are relatively unaffected by the fire event. In the most severely burned areas all combustible vegetative matter has been eliminated from the forest floor. Root systems of trees were heavily damaged and/or burned out. These trees are green at this time, but given the extent of root and lower bole damage few will survive. Random torching of individual trees also occurred. Other areas incurred only a light severity ground fire that appears to have provided a general cleansing of excess material from the forest floor. This unit is located at the base of the ridge that separates this area from the Clear Creek divide and borders the grassland of Camas Prairie. The stands are composed of Douglas-fir (75%), Ponderosa pine (20%), and western larch (5%). These stands average 110 years in age but do contain scattered individual trees of a much older age. Height averages 75' to 90'. Both live and fire killed Ponderosa pine is now under intense

attack from a variety of bark beetles.

Treatment Objectives:

- Recover the economic value of the damaged timber.
- Retain the surviving, live component of the two stands which compose this salvage unit.
- Promote conditions favorable to the recovery and regeneration of damaged areas of these stands.

Prescribed Treatment:

- Remove fire killed merchantable timber.
- Retain living trees in burned and unburned areas of these stands.
- Remove live trees currently under insect attack.
- Retain a minimum average of 4 snags > 14″ DBH per acre.
- Retain large diameter obviously cull trees.
- No trees will be removed from the SMZ adjacent to this unit.

Harvest Method:

- This unit provides an excellent opportunity for the use of in-woods processing, cut to length systems. Mechanized operations will be encouraged for this unit.
- Trees marked to leave.

Hazard Reduction:

- Lop and scatter all slash to a maximum depth of 18″.
- Burn landing piles following harvest operations.

Regeneration/Site Prep:

- Retain the maximum number of live trees to provide seed source for natural regeneration.
- Retain or return all green slash on the unit to assist in nutrient cycling.

- Spatial openings created by the burn mosaic will provide opportunities for natural regeneration of all tree species present in this stand. Scarification and/or other site preparation methods will not be required.

- Merchantability specifications will be adjusted to provide additional volume of down woody material providing increased potential for natural regeneration.

- Regeneration will be monitored following harvest activity. Planting will be considered in areas requiring assistance to natural regeneration.

Anticipated Future Treatment:

- Stand conditions and success of regeneration will be monitored on an annual basis. Planting to supplement natural regeneration will be considered where applicable and feasible.

- Evaluation for thinning will take place following the successful regeneration in these stands.

- Unexpected circumstances or developments will be evaluated on a case by case basis.

****

Harvest Unit: 5 **Harvest Unit Acres:** 52

Elevation: 3800′ **Slope:** 30%↔60% **Aspect:** SE and NW

Habitat Type: PSME/PHMA

Soil Type: Deep, well drained. Texture is gravely loam to sandy loam with some intermittent volcanic ash influence.

Description of Existing Stand: The stands comprising this salvage unit were almost totally consumed by the Clear Creek Divide fire of August 2000. The unit area south of the draw, which bisects Unit 5, was involved in the high intensity crown fire, which occurred on this section. Some areas of this unit north of the draw and bordering the grassland of Camas Prairie were spared the crown fire but were a part of a high intensity ground fire. Root and lower bole damage was very high and will lead to a high percentage of mortality. In both fire types nearly 100% of all material from the forest floor has been eliminated. Prior to the fire these stands were composed of Ponderosa pine (50%), Douglas-fir (45%), and western larch (5%). These stands averaged 110 years in age. Average DBH of salvageable trees averages 12″ to

20″. Salvageable trees average 65′ to 80′ in height. Live and dead Ponderosa pine is currently under intense attack from a variety of bark beetles.

Treatment Objectives:

- Recover the economic value of the damaged timber.
- Retain the surviving, live component of the two stands that comprise this harvest unit.
- Promote conditions favorable to the recovery and regeneration of damaged areas of these stands.

Prescribed Treatment:

- Remove fire killed merchantable trees.
- Retain living trees that exhibit potential for survival.
- Remove trees currently under insect attack.
- Retain a minimum of 4 snags > 14″ DBH per acre.
- Retain large diameter obviously cull trees.
- No trees to be removed from the SMZ areas associated with this unit.

Harvest Method:

- Cable yarding required for this unit.
- No equipment is to be operated off existing roads during harvest of this unit.
- Logs cable yarded across SMZ's must be fully suspended.
- Mechanical harvesting not permitted. Hand falling of all timber required.
- Trees marked to leave.

Hazard Reduction:

- Lop and scatter all slash to a maximum of 18″.

- Burn landing piles following harvest operations.

Regeneration/Site Prep:

- Retain the maximum number of live trees to provide seed source for natural regeneration.
- Retain or return all green slash on the unit to assist in nutrient cycling.
- Spatial openings created by the burn mosaic will provide opportunities for natural regeneration. Logging operations in severely burned areas will provide soil displacement and scarification to aid in natural regeneration of these areas.
- Merchantability specifications will be adjusted to provide additional volume of down woody material providing increased potential for natural regeneration.
- Regeneration will be monitored for success following harvest activity. Planting will be considered in areas requiring assistance to natural regeneration.

Anticipated Future Treatments:

- Stand conditions and success of regeneration will be monitored on an annual basis. Planting to supplement natural regeneration will be considered where applicable and feasible.
- Evaluation for thinning will take place following the successful regeneration and reestablishment of these stands.
- Unexpected circumstances or developments will be evaluated on a case by case basis.

PROPOSED CAMAS SALVAGE TIMBER SALE

BIODIVERSITY ANALYSIS AND IMPLICATIONS

Under the State Forest Land Management Plan, the DNRC has adopted standards for the maintaining of biodiversity on the forested landscape. These standards approach biodiversity as a goal that would present an appropriate mixture of forest cover types, stand structures, and age classes on state lands, and to the extent possible, across boundaries of the overall landscape. The appropriate cover types, or target stands, are based on the ecological site differences present on each parcel and the vegetative patterns historically associated with these differences.

The guidance establishes processes for measuring landscape biodiversity, for effecting it continuously through project plans and silvicultural treatments, and for monitoring its long-term status and condition. Included in these standards are strategies for managing special features of biodiversity, such as old growth stands and snags.

Under MEPA rules, DNRC evaluates the impacts of a proposed action on "vegetation cover, quantity and quality" (ARM 36.525(3)(d). If we employ the landscape biodiversity standards to accomplish this, then the project should be examined under each of the following elements of those standards:

- Forest Cover Types (defined by successional stage, species composition, and age class)
- Forest Patch Sizes, Shapes, Arrangements, and Connectivity
- Vertical Structure Within Forest Patches
- Snags

The above elements will be treated at various levels of emphasis in the sections that follow, as needed, first to explain the vegetation changes that are associated with the proposed action, then to assess the direct, cumulative, and secondary impacts of those changes.

AFFECTED ENVIRONMENT

Forest Cover Types: General Conditions on Plains Area

The inventory of forested State lands on the Plains geographic area (Sanders County) reveals the following general conditions:

- The mixed conifer type is ***over*** represented. This is thought to be, at least in part, the result of succession toward climax and the reduction of natural fire occurrence. Fire suppression activities of the mid to late twentieth century have reduced frequency and severity of natural fire. Early logging practices are also considered to be a factor, as they normally removed only large diameter trees of seral species, leaving the late seral and climax vegetation that has come to dominate many sites.

- The western larch/Douglas-fir type is ***under*** represented by an amount similar to the over represented mixed conifer types. As this occurs on essentially the same geographic and biologic sites, it is presumed to be the result of the same causes.

- Overall old growth (stands that average 150 years of age and older) is present in the amount targeted by policy, which is set at 50% or more of the amount thought to have occurred in pre-settlement patterns. However, within the overall inventory of old growth, the mixed conifer type is again ***over*** represented (1,594 acres compared to a target minimum of 377 acres), and the western larch/Douglas-fir type is ***under*** represented (1,992 acres compared to a target minimum of 2,586 acres).

The above conditions are documented in the following inventory tables included in this analysis:

- Plains Area Current Cover Class Acreage (Table 1)

- Plains Area Current and Appropriate Type (Table 2)

- Plains Area Minimum Old Growth Retention By Losensky Type (Table 3)

The Plains Office prepares two to four timber sales per year. Each proposed sale is evaluated for its potential effects on current and appropriate vegetation types using the above mentioned tables and the landscape biodiversity guidelines from the State Forest Land Management Plan. This method is used to ensure the collective effects of past, present, and future timber sales are taken into account when assessing potential impacts (beneficial and/or adverse) of a project on vegetative conditions over the broad landscape level of the Plains geographic area.

This process for monitoring and accounting of landscape level vegetative conditions is a forest management tool that is applied directly in proposed timber sale designs. Specifically, timber sales being considered in the immediate future (next three years) will be analyzed for ways they might be used to improve landscape diversity.

For example, a near term project might use partial cutting to convert mixed conifer old growth stands to western larch/Douglas-fir (WL/DF) old growth, thereby improving the current imbalance (Table 3). As another example, the knowledge that there are 3,927.6 acres of WL/DF type in the age class just below old growth (100 years to Old Growth,

Table 1) can be used to choose for retention of individual WL/DF stands that are close in age to becoming old growth.

ENVIRONMENTAL EFFECTS

Analysis Methods:

Past and current events have changed the forest conditions on the land parcel involved in the proposed project. Past events include natural succession, previous harvest, historic fire activity, more recent fire exclusion, and a significantly high level of insect and disease activity. The current event responsible for major change on this section is the Clear Creek Divide Fire of August 2000. This single fire event is the reason for DNRC to initiate the proposed action.

To account for changes from these events, data and maps from the DNRC Stand Level Inventory (SLI) were compared to the Project Design Map, silvicultural prescriptions for the proposed action, and Vegetation Mortality Analysis contained within the Clear Creek Divide Fire Burned Area Rehabilitation Plan (the BAER Plan) prepared by the Northern States Burned Area Emergency Rehabilitation Team, United States Department of the Interior. The empirical results of this comparison are shown in Table 4 (Current and Post Treatment Cover Types). Stand numbers listed in this table correspond with stand numbers listed in the SLI. A map of these stands is included in this analysis.

The Baer Plan identifies major changes to existing vegetation on this section. Mortality of 100% has occurred on approximately 65% of this section. The remaining 35% of the section has incurred up to 75% mortality. Pre-fire stand conditions indicated the appropriate types were present in all cases. Re-establishment of stands through natural regeneration or planting would result in appropriate cover conditions. Age class of cover types would generally fall to the 0 – 39 year class. Some areas of less severe burn and the unburned SMZ areas will retain the current age class. Details of these changes can be seen in Table 4 – Pre Fire and Post Salvage Cover Types. Stand Level Inventory (SLI) data identifies no old growth stands on this section. Ground truth verification affirms that old growth is not present.

Direct, Cumulative, and Secondary Impacts of the Project on Vegetation

Most of the impacts of the proposed action would be considered direct or cumulative. A secondary impact means "a further impact to the human environment that may be simulated or induced by, or otherwise result from, a direct impact of the action" (ARM 36.2.522(18)). Secondary impacts are lacking, unless specifically noted in the following sections.

Cumulative impacts are the "collective impacts on the human environment of the proposed action when considered in conjunction with other past and present actions related to the proposed action by location or generic type" (ARM 36.2.522(7)).

The "generic type" of actions in this case means timber harvests of past, present, and near future that, in combination with natural vegetative patterns and disturbance events such as fire, will determine the collective condition of the forests in the local human environment.

The "location", or the affected human and physical environment, must be established in order to consider vegetation impacts. It is necessary to delineate an area of vegetation influenced by the project that is discrete and meaningful, allowing the quantity and quality of the vegetation within to be measured according to the values people attach to forests. MEPA assumes these values to include natural, social, and economic benefits. In the process of determining location, it is appropriate to examine the connection of these values to forest vegetation and the DNRC's landscape biodiversity standards.

The standards for landscape biodiversity reflect the Department's strategy for keeping state forests biologically diverse, healthy, and productive. Managing for biodiversity under the State Forest Land Management Plan will allow state forests to sustain capital value and income generating capacity for current and future benefits.

This strategy is tailored to the unique responsibilities of managing trust land forests. As such, the DNRC biodiversity standards may not be a perfect representation of the general public's desires regarding local forest conditions. The standards do, however, incorporate to the fullest extent possible the range of public sentiment that was surveyed during the development of the State Forest Land Management Plan. Therefore, the principles on which the biodiversity standards are based are important to consider when selecting an appropriate assessment "location" for cumulative impacts on vegetation.

Biodiversity RMS 7 in the State Forest Land Management Plan states, "Biological Diversity Strategies for Forest Type Groups" (Remington's Study) or other current reference would be used as a guidance for landscape level biodiversity evaluations, old growth protection, and design of timber harvests to promote biodiversity. The biological diversity strategies would be updated periodically, with professional review, as new information and concepts are developed.

In May, 1998. "Remington's Biodiversity Strategies" was superceded by the Biodiversity Guidelines as allowed for and encouraged under Biodiversity RMS 6 and 7. The Biodiversity Guidance was sent out for internal and external professional review in the summer and fall of 1997. "Remington's Biodiversity Strategies" is cited in the Biodiversity Guidance as being a tool to help suggest appropriate cover types for various habitat types (BIO-9); however, Remington's study is not to be used where it is inconsistent with the Biodiversity RMS or the Biodiversity Guidance.

In particular, the Landscape Planning and Old Growth Protection portions of Remington's study are not applicable to current management strategies since they are inconsistent with the direction in Biodiversity RMS 1, 3, and 6. The adoption of the Biodiversity Guidance in May 1998 cleared up these inconsistencies and should be viewed as the current procedure for managing biodiversity and old growth on State lands.

The vegettion analysis (including old growth and biodiversity) documented in this environmental analysis is in compliance with the direction specified in the Biodiversity Guidance.

The biodiversity standards are applied to physical sites and the natural vegetative patterns associated with such sites. "Sites" may be further defined as the individual timber stands where action is proposed. The standards are analyzed in comparison with changes to timber stands that are designed to achieve the historically appropriate mixtures of forest cover types on the landscape.

To fulfill the MEPA responsibility for evaluating cumulative impacts to vegetation, it is first necessary to examine the project area, as it consists of the sites and forest stands that form the discrete part of the landscape involved. An additional consideration would be the past, current, and future planned activities on land contiguous to the project area. This allows a view of effects of the proposed action in conjunction with other actions occurring in the local human and physical environment. This process generally will expand the analysis beyond boundaries of state land.

By using the landform criterion, we can assess a projects impacts (beneficial and/or adverse) by comparing the project effects with the natural forest patterns we would expect to find on a particular mountainside, valley bottom, ridge, bench, or some combination of these features. These local features and the sub-components of slope, aspect, and elevation essentially define a "forest habitat type" that determines the kind of forest and vegetation that will grow there following disturbance. As any one type of disturbance will generally occur on only a portion of a land feature, over time multiple disturbances produce a forest pattern that is typical and somewhat predictable for that landform or location.

In comparison to landform locations, other geographic locators such as watersheds, elevation zone, or precipitation zone are less reliable predictors of forest vegetation, thus limiting their value in selecting an appropriate area in which to assess cumulative impacts on vegetation. Correlating even less with specific forest vegetation would be legal or administrative locators such as surveyed parcels of legal ownership, counties, administrative boundaries, etc, unless such areas happen to coincide with the natural boundary of a forest ecological zone.

The landform location to be assessed in this case is the land bordered by the Clear Creek Divide (to the south), the Reservation Divide (to the west) and the Camas Prairie grassland (to the north and east). Project activity as proposed would effect one unnamed tributaries to the Camas Creek drainage. The unnamed tributary joins Camas Creek approximately 2 miles to the east. Camas Creek continues south approximately 4 miles to its entry point into the Clark Fork River. Confederated Salish and Kootenai Tribal ground surrounds Section 16 and dominates the project analysis area (2500 acres) and includes all or portions of Sections 8, 9, 10, 15, 16, 17, 18, 19, 20, 21, and 22, of T19N R24W. Confederated Salish and Kootenai Tribes own the entire analysis area with the exception of the 640 acres of Section 16, T19N, R24W, which is owned by the State of Montana

Common School Trust. Portions of the tribal ownership are in allotment and/or fee status. The characteristic landform of the project area is that of a 3rd order watershed bordered by ridges to the south and west, the grassland of Camas Prairie to the north and east. The unnamed tributary of Camas Creek bisects the area from west to east, generally dividing the section into evenly divided north and south facing aspects. A map defining the analysis area is included with this report.

While past activities of man and nature have played roles in forming the vegetative types found on this section, the recent fire activity has had the most effect. Timber harvest conducted in 1978 created a young regenerating stand that received little damage from this fire. A selectively harvested area was involved in the mixed severity fire and suffered 50% to 75% mortality. Most areas of 100% mortality had little or no previous logging or stand improvement activity. Evidence indicates the majority of the area was of similar age and species distribution prior to the fire of August, 2000. Previous fire events have been shown to be the major determining factor of age class in stands present prior to the most recent fire. Current insect and disease activity on State land and the adjacent ownership had created some areas of tree mortality prior to the fire event, most notably in Douglas-fir affected by the Douglas-fir beetle. A wide variety of bark beetles are now extremely active in both living and fire killed Ponderosa pine.

MEPA requires future activity planned by the State to be considered in the analysis process. No future commercial activity is planned by the State on this section at this time. No additional parcels of State land are located within the analysis area. The Confederated Salish and Kootenai Tribes salvage activity is planned for the Clear Creek watershed and will have little or no activity within the analysis area of the proposed State project.

Impacts within the analysis area are measured and judged according to the effects to the various elements of biodiversity. The following section of this report outlines these impacts.

Forest Cover Types: Direct, Cumulative, and Secondary Impacts

The most visible effect of the proposed action is the return of a large portion of the section to the 0 – 39 year age class. This increase is the net result of the high intensity crown fire that eliminated all vegetation over a majority of the section. Natural regeneration and planting will return these stands to productivity in the appropriate cover type (see Table 4 for specific stand effects). This is a direct impact in the context of biodiversity standards for cover types. It is also a cumulative impact when considered with other similar fire damage to surrounding tribal ownership in the analysis area.

Old growth stands were not present on this section prior to the recent fire. Two stands in the 100 - OG age category were damaged by the fire, but many areas containing older larger trees were spared the crown fire and related mortality. Retaining these trees will provide both regeneration and patches that will approach OG conditions in a relatively short time. Promoting conditions in these existing stands toward old growth conditions

would benefit the overall old growth component for appropriate conditions on the entire Plains geographic unit and should be considered a positive cumulative effect to old growth.

Forest health surrounding surviving trees is creating a major threat to economic value on Section 16 (and the surrounding area) at this time. Bark beetles infestation is occurring at highly significant levels in both live and fire killed Ponderosa pine. (See "Silvicultural Prescriptions" included as "Attachment 3" to the Environmental Analysis). Removing affected trees is needed to protect a valuable seed source for regeneration as well as to halt loss of high value trust assets. Attachment 5 , Effects/Cumulative Effects, provides additional discussion concerning the reestablishment of a healthy, diverse, vegetative community on this section.

Forest Patch Sizes, Shapes, Arrangements, and Connectivity: Direct, Cumulative, and Secondary Impacts

All timber harvest areas of the proposed action are closely defined by ecological boundaries and fire regimes. As such, horizontal patterns resulting from tree removal will generally mimic the size, shape, and arrangement as those created by a natural fire event. The Proposed Harvest Unit Map included in Attachment 1 of the Environmental Analysis shows the pattern, size, and arrangement of cutting units varying from 52 to 149 acres. This is believed to be consistent with the size of historic natural patterns found on this land form location. There would be no adverse cumulative effects to patch sizes, arrangements, and connectivity as a result of the proposed project.

There is direct no impact on vegetative patterns from the proposed project. Recovery from fire related mortality would restore and maintain natural patterns, as opposed to altering or removing them. This is the effect that is intended under the DNRC landscape biodiversity standards.

The Clear Creek Divide fire has had, and will continue to have, a major impact on connectivity of forest patches in this area. Connectivity is an element of landscape biodiversity that measures how well particular wildlife habitats are interspersed to allow relatively full and secure use of such areas. Regenerating the burned areas will be only the first step in restoring connectivity in the area. The fire has created a loss of thermal cover, hiding cover, and forage for deer and elk. Conversely, the location of surviving patches of both mature and regenerating timber will provide diverse patch effect in the present and the future. General benefits for deer and elk are intended in the DNRC biodiversity strategy, and the retention of surviving trees in this instance falls within the program standard. The reductions in hiding and thermal cover in the short term could be viewed as temporary, as opposed to permanent, adverse impact. Improved stand health could provide quality ungulate habitat in the longer term. A full analysis of wildlife effects and cumulative effects is found in "Attachment 2, Specialist Reports, and Attachment 5, Effects/Cumulative Effects".

Vertical Structure Within Forest Patches: Direct, Cumulative, and Secondary Impacts

Within harvest units of the proposed action, vertical patterns (stand structures) resulting from cutting will either remain the same (even aged cutting in an even aged stand) or be made more diverse by the cutting. Trees surviving the fire will be left as both seed source and as components of diverse stand structure. This area is dominated by naturally occurring even aged stand structures. Fire as well as even aged harvest activity maintains this characteristic. Silvicultural strategies of the proposed action will provide even aged stands of the naturally occurring cover types for this area.

Considering these factors, the cumulative effect of the proposed action is a somewhat more diverse pattern of vertical structure than existed prior to the fire. When measured by the stand structure element of biodiversity, this effect is considered a beneficial cumulative impact to vegetation quality. Details of the structural effects to individual stands are outlined in Attachment 3 "Silvicultural Prescriptions".

Snags: Direct, Cumulative, and Secondary Impacts

Snags (standing dead trees of varying species and size) are an important element of biodiversity. Snags provide forage, nesting, and denning habitat for many species of birds and small mammals. They also provide shade and interception of precipitation. When no longer standing they contribute mulch and nutrients to forest soils, and become essential habitat and forage sites for a wide variety of plants, fungi, and animals.

DNRC guidelines for snags in the western Montana forest type are an average of 4 medium/large snags per acre. Guidelines for snags in Ponderosa pine forest type are 1 medium/large snag per acre. Due to this abundance of snags resulting from the fire, recruitment of snags would not be a priority consideration. Project design and silvicultural prescriptions designate a minimum of 4 large diameter snags (> 14" DBH) to be retained. Safety for project operations is the only exception to this requirement. This retention of the large number of existing snags can be considered ***increasing*** as well as ***achieving*** or ***creating*** snag presence and distribution. These factors lead to the determination of a cumulative beneficial effect relating to snags.

TABLE 1
PLAINS CURRENT COVER CLASS ACREAGE

Current Type	Stand age class				
	0 – 39	40 - 99	100 - OG	Old Growth	Total
	Acres				
ALP	0	206.6	326.0	160.2	692.8
DF	0	829.9	775.1	484.8	2,089.8
HW	0	0	110.9	0	110.9
LP	601.0	2,253.2	687.2	37.3	3,578.7
MC	124.1	2,601.6	4,337.6	1520.6	8,583.9
NONSTKD	393.8	0	0	0	393.8
PP	509.3	9,122.3	11,517.8	6,752.4	27,901.8
WL/DF	548.5	2,652.0	3927.6	2,009.3	9,137.4
WWP	103.3	44.5	95.6	63.4	306.8
TOTAL	**2280.0**	**17,710.1**	**21,777.8**	**11,028.0**	**52,795.9**

Updated 10/16/2000

TABLE 2
PLAINS AREA BY CURRENT AND APPROPRIATE COVER TYPE

Losensky Cover Type	Current Type	Appropriate Type	Over/Under
	Acres		
ALP	692.8	179.6	+ 513.2
DF	2,089.8	2,261.2	- 171.4
HW	110.9	110.9	0
LP	3,578.7	2,763.5	+ 815.2
MC	8,583.9	1,479.6	+ 7,104.3
PP	27,901.8	27,948.8	- 47.0
WL/DF	9,137.4	17,686.2	- 8,548.8
WWP	306.8	366.1	- 59.3
TOTAL	**52,402.1**	**52,795.9***	

* Total includes 393.8 non stocked acres identified in Table 1

Updated 10/16/2000

TABLE 3
PLAINS AREA MINIMUM OLD GROWTH RETENTION BY LOSENSKY TYPE

Losensky Type	Minimum	Current	Over/Under
	Acres		
PP	7,862.0	6,752.4	- 1,109.6
DF	123.9	484.8	+ 360.9
WL/DF	2,585.7	1,936.3	- 649.4
LP	41.5	37.3	- 4.2
WWP	45.2	63.4	+ 18.2
MC	376.9	1,593.6	+ 1,216.7
ALP	17.9	160.2	+ 142.3
TOTAL	**11,053.1**	**11,028.0**	**- 25.1**

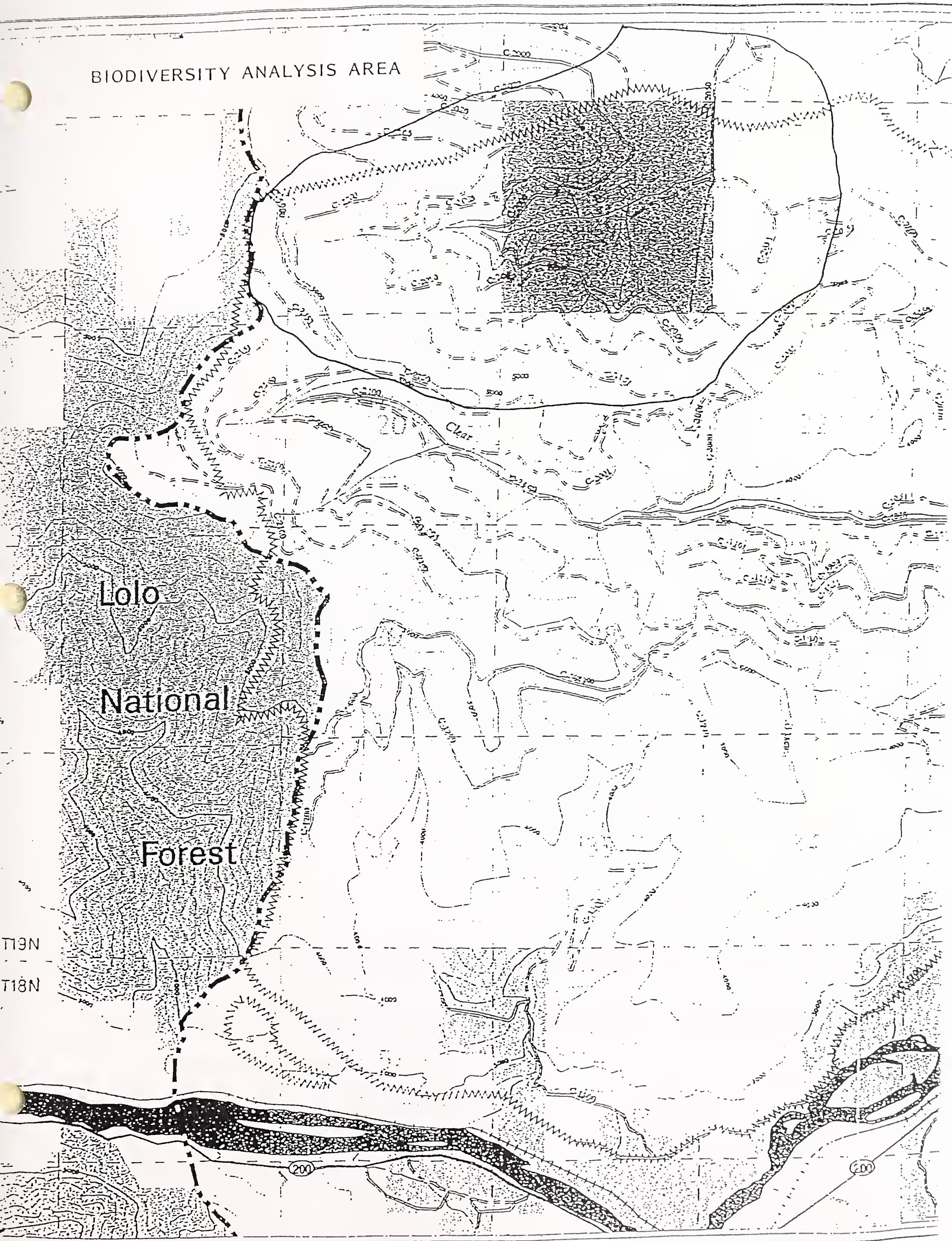
Updated 10/16/2000

TABLE 4
CAMAS PRE-FIRE AND POST-SALVAGE COVER TYPES

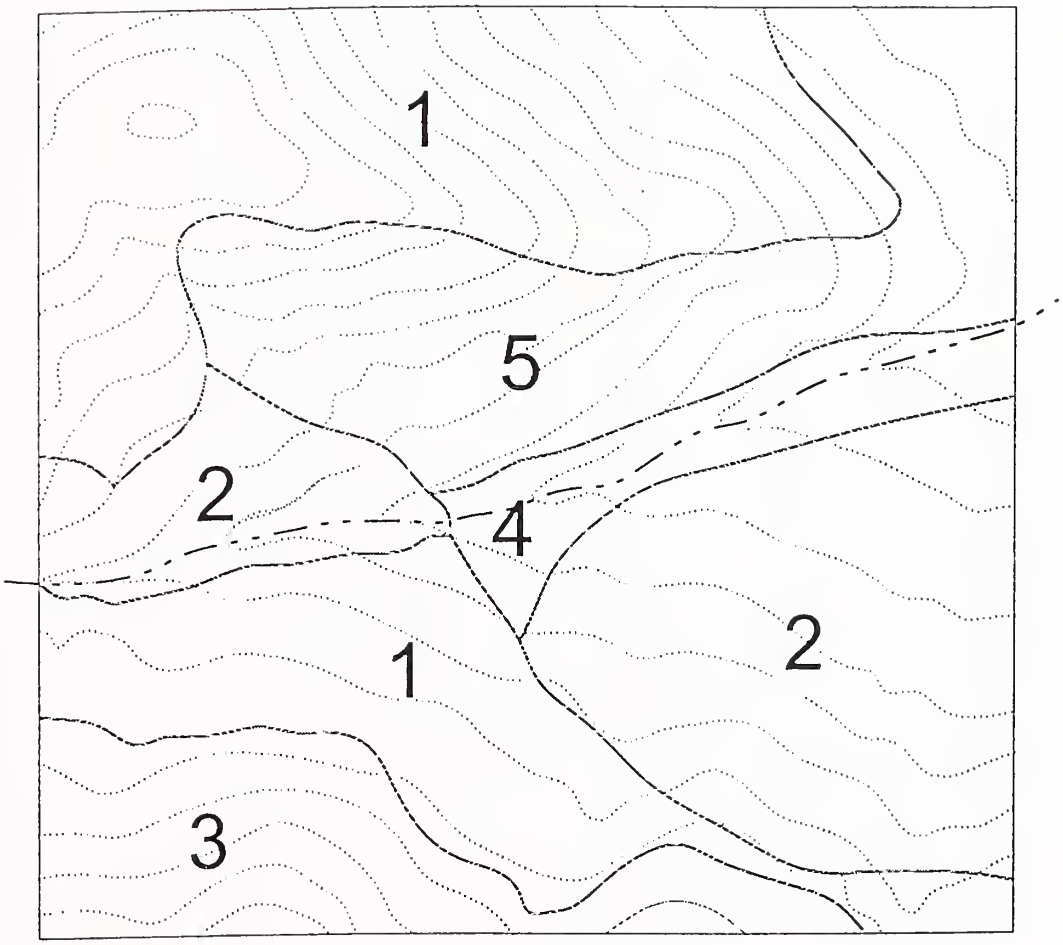
Stand Number	Appropriate Type	Stand Acres	Burn Severity	Pre-Fire		Post-Salvage	
				Type	Age	Type	Age
1	WL/DF	67.6	3	WL/DF	0-39	WL/DF	0-39
2	PP	69.8	1	PP	100-OG	PP	0-39
3	PP	49.9	1	PP	40-99	PP	0-39
4	WL/DF	44.9	1	WL/DF	100-OG	WL/DF	0-39
5	WL/DF	62.7	1 & 4	WL/DF	100-OG	WL/DF	0-39
6	WL/DF	109.3	2	WL/DF	40-99	WL/DF	40-99
7	PP	93.5	2 & 4	PP	40-99	PP	40-99
8	NF	135.8	5	NF	N/A	NF	N/A
9	NF	6.5	N/A	ROAD	N/A	ROAD	N/A
TOTAL		640					

Burn Severity Types
1 - High Intensity Crown Fire 100% Mortality
2 – High Intensity Ground Fire 50% - 75% Mortality
3 – Low intensity Ground Fire 0% - 25% mortality
4 – Mixed Severity Fire 0% - 50% mortality
5 – Range/Grass Fire

BIODIVERSITY ANALYSIS AREA



Burn Severity
S16, T19N, R24W



1 High Intensity Crown Fire - Stand Replacement Event

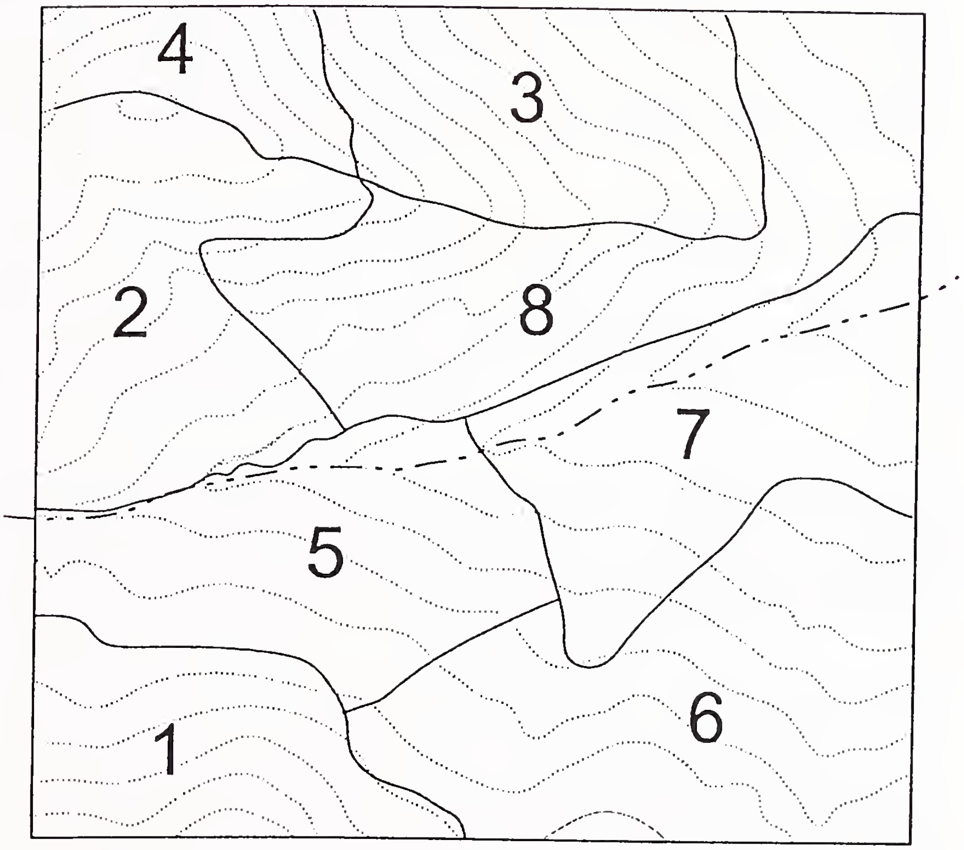
2 High Intensity Ground Fire - Long Duration - High Mortality

3 Low Intensity Ground Fire

4 Mixed Severity Fire - SMZ Area

5 Range/Grass Fire

SLI Timber Stands
S16, T19N, R24W



PROPOSED CAMAS SALVAGE TIMBER SALE

EFFECTS/CUMULATIVE EFFECTS

Action Alternative

Roads: Current open road density on this section is 4.0 miles. Following the completion of the proposed action this total would be reduced to 2.5 miles. Road density for the entire analysis area is approximately 10 miles. Implementation of the action alternative would reduce this total to 8.5 miles. New road construction is not required to implement the action alternative. Several short overgrown trails (not included in the open road density total) used occasionally by vehicles will be obliterated or otherwise closed to motorized use. Tribal System Road 2000 would remain open following the proposed salvage action providing the 2.5 mile open road total. One mile of road (designated as 16-1) would be gated and closed to general use. Access for DNRC administrative procedures and authorized grazing lessee would continue. One culvert currently existing on Tribal 2000 would be replaced with a CMP of proper length and diameter. The existing SMZ crossing on 16-1 would be improved by providing surface lift and ditching. All roads used in implementing and completing the Action Alternative would be improved to meet all BMP's for roads.

Watershed: The cumulative watershed effects boundary includes only the unnamed tributary of Camas Creek. No project activity would take place in SMZ's associated with this tributary. Improvements to drainage from roads, proper sized CMP's, road closures, road maintenance would take place as specified in the purchaser contract., Due to unit prescription, design, and location it is unlikely that any effects for the proposed activities will be detectable downstream of this point. Detailed watershed analysis is included in Appendix 2, Specialist Reports.

Soils: Implementation of the proposed activities would include mitigation measures to limit soil impacts. Cable yarding systems designated fir use in unit areas adjacent to SMZ's would minimize impacts in areas most sensitive to disturbance. No productivity would be lost to new road construction. Abandoned roads and trails would realize a slow reduction in soil compaction as vegetation reestablishes and soil productivity increases. Limiting operations to dry (< 20% moisture content) or frozen conditions will minimize impacts to soil on the project area.

Wildlife: Cover has been removed from a majority of this section by the fire and most certainly has some impact on big game species in the area. Some islands of green vegetation remain in scattered locations on the State section. The SMZ of the unnamed tributary is relatively undamaged and provides habitat for some species. The proposed activity is designed to aid in the reestablishment of vegetation, which is a first step toward habitat restoration. Snags are retained at levels recommended by wildlife biologists reviewing the project. The enormity of the fire provides a vast supply of snags for snag dependent species. No adverse effect or cumulative effect to wildlife has been identified during specialist review of the proposed project. Specific and details of effects to wildlife are included in the Wildlife Assessment included in Attachment 2, Specialist Reports.

Vegetation: Fire has eliminated virtually all vegetation in three stands found on this section, returning them to a regenerating age class. Two stands receiving partial damage will retain their previous age classification. As the surviving trees are generally the older and larger individuals, a move toward an older stand age is made. Adjusted merchantability standards would begin to replace down woody material that was eliminated by the fire. This additional down large material will provide stabilization to soil and create microsites for establishment of tree species regeneration. Controls to grazing would aid in reestablishing burned grassland and return range conditions with lessened impacts from cattle. Effects to vegetation were analyzed and are detailed in the Biodiversity Analysis, Attachment 4. No significant adverse cumulative effect to vegetation has been identified by the biodiversity analysis. Change in cover type totals less than 1% of the total Plains Unit acreage. This change is primarily the result of wildfire and would occur with or without implementation of the proposed project.

Economics: Development costs associated with the Action Alternative are exceptionally low. The expected total for road improvements and stockpile materials is $10,000.00. Applied to the estimated salvage total of 20,290 tons, development cost would be $ .492/ton. This low development cost should insure maximum return to the trust under any market condition. The estimated $ 325,000.00 generated from this salvage would combine with other annual Trust actions providing income to the Common School (C.S.) Trust. Forest Improvement fees would generate an estimated $ 163,000.00 to the State F.I. fund and would provide funding for planting and other recovery projects directed at returning this section to productivity for the Trust. Road improvement and maintenance costs would be borne by the timber purchaser. Contract specifics would require timber the timber purchaser to provide stockpile materials to complete fencing of the section for grazing control as well as other projects as determined by the State.

No Action Alternative

Roads: Current open road density on the State section of 4.0 miles would remain without improvement or closures. Road density for the analysis area would remain at 10 miles. Overgrown trails occasionally used by vehicles would not be obliterated or otherwise closed. Several of these trails are located within the SMZ of the unnamed tributary and occasional use could possibly create soil damage or initiate erosion into the unnamed tributary. The undersized CMP in Tribal Road 2000 would not be replaced, increasing the potential for damage to roads, SMZ's, and the unnamed tributary. Drainage required for roads to meet BMP requirements would not be provided. The SMZ crossing of Road 16-1 would not be improved. These road improvements could be completed by the State, but the cost would be borne by the State rather than the timber purchaser. Gate closure of Road 16-1 could be, but the cost would be borne by the State or grazing lessee rather than the timber purchaser.

Watershed: Watershed effects of no action would generally only effect the unnamed tributary to Camas Creek. The primary concern would be water quality associated with erosion following the mortality of such a high percentage of the vegetation on the section. The lack of road maintenance and drainage improvement coupled with anticipated increases in runoff due to loss of vegetation would combine to increase the risk of erosive damage. Damage from unauthorized range cattle could increase these possibilities. Restrictions to grazing leases currently in place would be required, or damage similar to that of unauthorized range cattle could be expected.

Soils: Measures to control erosion of roads and land within the section would not be accomplished. Burned trees would eventually fall over and contribute to nutrient cycling, but immediate measures attempting to stabilize soil and add down woody material would not occur. Without road maintenance and related operations the expected increases in runoff may contribute to the possibility of siltation of the unnamed tributary. Soil damage from unrestricted access of cattle would occur in the SMZ.

Wildlife: Implementation of the No Action alternative would not result in major impacts to Threatened or Endangered species. The retention of existing road density would reduce security to big game species found in the area.

Vegetation: Increases to down woody material on the forest floor would occur as burned trees fall. Soil stabilization and regenerative microsites would develop a much slower rate than under the Action alternative. Natural regeneration would occur, but would not be supplemented by planting without DNRC action of some sort. Control of grazing would require DNRC action to limit trespass grazing by range cattle and the rescheduling of Lessee grazing to provide rest/rotation/regeneration of grassland found on the section.

Economics: The estimated $325,000.00 in timber revenue would be lost to the Trust. Without a sale package for timber from the burned section, cost of improvement to roads on this section would be borne by the State. The State has only limited funds available for such projects, and it is

highly probable that improvements could not be accomplished. Without the Forest Improvement fees attached to a timber sale agreement, all costs of replanting areas not successful in natural regeneration would be borne by the State. The State has only limited funds to provide regeneration without Forest Improvement revenue, and the probability of not being able to plant would be high. Stockpile material required of a timber purchaser would provide gates and fencing material required to control both legal and trespass grazing of the section. Again, DNRC has limited funds and manpower to accomplish these controls, and the probability is high that only limited fencing could be completed.

PROPOSED CAMAS SALVAGE TIMBER SALE

MITIGATION MEASURES

Roads: A transportation system meeting project requirements is currently in place. No new road construction is required to implement the action alternative. General maintenance, construction of drain dips, one CMP replacement, plus 300' of surface lift with ditch construction will be required to meet BMP standards. All roads will meet BMP standards prior to the beginning of salvage logging operations. Non-essential sub standard roads currently existing on this section will be obliterated or otherwise closed. Road 16-1 will be gated closed following salvage operations. All roads will be grass seeded prior to and following salvage activity.

Biodiversity/Old Growth: Old growth stands were not present on this section at the time of the recent fire. Surviving trees in areas of low severity fire or mixed severity fire would be retained. No trees, live or fire killed, would be removed from the SMZ. Snags are retained at recommended levels in all areas.

Wildlife: Snags will be left in all harvest units to be used by the dependent species. No activity is planned within the SMZ found on this section.

Soil: Soils exposed by construction activity will be grass seeded as soon as it is practically possible. Skid trails will be water barred to limit erosion following project activity. Filter windrows will be used to assist in stabilizing fill slopes of roads. All roads will be improved to include drainage measures to limit erosion. Activity would be limited to dry (< 20% soil moisture) or frozen conditions. Unit 5, adjacent to the SMZ, will be cable yarded with any logs crossing the SMX required to be fully suspended. Equipment operation will not be permitted within Unit 5. Hand falling of all timber will be required.

Hydrology/Watershed/Water Quality: No harvest activity would take place within SMZ's. Proper drainage features would be designated for all roads. One existing culvert now in place would be replaced. 16-1 adjacent to the SMZ will have the surface lifted 18" at its crossing of the SMZ. Ditches directing flow to existing CMP's would be constructed along with this lift. Unit 5, adjacent to SMZ areas, would be cable logged, with all equipment restricted from leaving the established roadway. All logs would be fully suspended when crossing the SMZ.

Grazing: Requests to modify the existing grazing permit for the project area have been submitted to the appropriate DNRC divisions. A minimum of two years deferment has been requested. Fence material and gates to secure the section from trespass grazing will be provided as a contract specified item in the sale package. At the completion of the deferred period the section will be reevaluated for appropriate AUM allocation.

PROPOSED CAMAS SALVAGE TIMBER SALE

CONSULTANTS AND REFERENCES

Individuals Consulted

Confederated Salish and Kootenai Tribes, Pablo, Montana

- Roland Becker, Silviculture
- Dennis Clairmont, Range Conservation
- Marcia Cross, Cultural Committee
- Marty Gulick, Forest Planning
- Seth Makepeace, Hydrology
- Gary Orr, Forestry Department Head
- Rhonda Swaney, Natural Resources Department Head
- Germaine White, Cultural Committee

Gary Hadlock; MT DNRC, Northwestern Land Office, Kalsipell, Montana

Craig Halford, MT DNRC, Northwestern Land Office, Kalispell, Montana.

Jon Hayes; MT DNRC, Southwestern Land Office, Missoula, Montana

Jack Isaacs; MT DNRC, Kalispell/Plains Unit, Plains, Montana

Norm Kuennan, MT DNRC, Northwestern Land Office, Kalispell, Montana

Marvin Miller; MT DNRC, Northwestern Lands Office, Kalispell, Montana

Patrick Rennie, MT DNRC, Trust Land Management Division, Helena, MT

Keith Rush, Consultant Forester, Plains, MT

Bill Schultz, MT DNRC, Forest Management Bureau, Missoula, Montana

Bruce Shinn, Consultant Forester, Plains, MT

Jay Sheppard, MT DNRC, Northwestern Lands Office, Kalispell, Montana.

Marc Vesser, MT DNRC, Northwestern Land Office, Kalispell, Montana

Allen Wolf; MT DNRC, Northwestern Land Office, Kalispell, Montana

Bill Wright, MT DNRC, Kalispell/Plains Unit Manager, Kalispell, Montana.

Everett Young; MT DNRC, Kalispell/Plains Unit, Plains, Montana

Special Reference

Clear Creek Divide Complex Burned Area Rehabilitation Plan (BAER Report), prepared by the Northern States Burned Area Emergency Rehabilitation Team, United States Department of the Interior.

Forestry Best Management Practices, Confederated Salish and Kootenai Tribes.

Forestry Best Management Practices, Montana Department of Natural Resources and Conservation.

State Forest Land Management Plan, Montana Department of Natural Resources and Conservation, 1996